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PLANTS, INCLUDING FUNGI, POISONOUS OR OTHERWISE, INJURIOUS TO MAN IN AUSTRALIA.[1]

By J. BURTON CLELAND, M.D.,
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IN *The Australasian Medical Gazette* for June 20, 1914, I published a paper dealing with the records of a number of plants which in various ways had been found injurious in a medical sense to human beings in Australia. During the eleven years that have since elapsed, futher cases have been recorded and additional refererces have been unearthed from the earlier Australian medical publications and the journals of explorers. These have been incorporated in the present communication.

Plants Injrious on Ingestion.

Illnesses Attributed to Eating Watermelons, Grapes, Tomatoes, Peaches, Apples et cetera.

Dr. N. Pern,[1] under the title "Fruit Poisoning," suggests that various mysterious deaths reported in the daily papers in February might be due to toxæmia, the result of the decomposition of fruit, tomatoes *et cetera* in the bowel. At Inglewood in South Queensland he had met with a series of cases that he had attributed to such a source. Details of six of these are given. The main symptoms had been slight retching or vomiting, slight diarrhœa or constipation, generally some abdominal distension, an exceptionally rapid pulse (up to 180), duskiness and blueness of the skin and in some cases a development of a state of unconsciousness and death within twenty-four hours. Recovery was rapid if the patients were treated in time by calomel and enemata. The patients showed a craving for water and a raised temperature. The actual temperature is mentioned in one instance as being 38.9° C. (102° F.). In some instances convulsions took place and in others these did not occur.

Croton Oil Poisoning.

Dr. E. S. Jackson[2] was informed by Dr. Bancroft that many years ago some children ate some of the berries of the croton and became very ill. Their father went to the family doctor who said the berries were innocuous and that it was unnecessary for him to come. To show their harmless nature he ate some of the berries himself. When the father returned home he found the children worse, so he at once went back to his medical man. The latter now was, however, so ill from the purgative effect of the berries he had eaten, that he was quite unable

[1] Read at a meeting of the South Australian Branch of the British Medical Association on July 30, 1925.

to attend them, so he asked Dr. Joseph Bancroft to do so. The latter managed with difficulty to save their lives.

Acacia Seeds.

The explorer Dr. Leichhardt,[3] when near the Roper River under date October 29, 1845, mentions that:

The Acacia of Expedition Range was plentiful in the large flat and at the wells of the natives and formed a fine tree; its seeds, however, were shed and had been roasted by the late bush fire. Mr. Phillips who was always desirous of discovering substitutes for coffee, and to whom we owed the use of the river bean of the Mackenzie, collected these seeds and pounded and boiled them and gave me the fluid to taste, which I found so peculiarly bitter that I cautioned him against drinking it; his natural desire, however, for warm beverage which had been increased by a whole day's travelling, induced him to swallow about a pint of it, which made him very sick and produced violent vomiting and purging during the whole afternoon and night. The little I had tasted acted on me as a lenient purgative, but Mr. Calvert who had taken rather more than I did, felt very sick. The gum of this Acacia was slightly acid and very harmless.

Cassia Seeds.

Leichhardt,[3] near Comet Creek on December 31, 1844, said that:

The seeds of a *Cassia* when young had an agreeable taste and the tissue when dry was pleasantly acidulous and was eaten by some of my companions without any ill effects, whilst others with myself were severely purged. Today I found the same plant in form of a tree about thirty feet high with a short stem and long spreading shady branches.

Eucalyptus Oil Poisoning.

L. P. Winterbotham,[4] of Lowood, Queensland, records a case where a teaspoonful of "the best eucalyptus extract" was taken and another teaspoonful three hours later. Three and a quarter hours later again the patient was pale, sweating, drowsy and retching a little and then the walk became unsteady. The patient talked nonsense, the articulation was impaired and the pulse was somewhat weak but not accelerated. Dr. Winterbotham was not satisfied that the poisoning was not due to alcohol.

Dr. W. P. Seed,[5] of Perth, mentions a case in which the patient was supposed to have taken thirty cubic centimetres of eucalyptus oil. An emetic was given and recovery occurred. Dr. Bentley mentioned in discussion an instance in which twelve drops had caused collapse, but the patient recovered rapidly.

J. MacPherson[6] has recently discussed the toxicology of eucalyptus oil. In this article he states that he has records of eight fatal cases in Australia and that minor toxic symptoms after over dosage are common.

The Fruits of Macrozamia.

We have previously recorded a number of instances of poisoning from eating the nuts of the various species of Cycads met with more particularly along the eastern and western coasts of Australia. The following additional accounts have since been collected: W. B. Alexander[7] quotes the following experience of the Dutchman, Willen de Vlamingh, under date January 6, 1697:

On the following day they brought me the nut of a certain fruit tree, resembling in form the "driœns," having the taste of our large Dutch beans, and those which were younger were like a walnut (no doubt these were seeds of the zamia—W.B.A.). I ate five or six of them, but after an interval of about three hours I and five others who had eaten of these fruits began to vomit so violently that we were as dead men; so that it was with the greatest difficulty that I and the crew regained the shore, and thence, in company with the skipper, were put on board the galliot, leaving the rest on shore.

Governor Phillip,[8] in a letter to Lord Sydney, dated May 15, 1788, mentions:

The kernels of a large fruit which is not unlike a pine-apple but which when eaten by the French seamen occasioned violent retchings.

This was written soon after the arrival of the first fleet and the French seamen were those of La Perouse's ill-fated expedition.

Leichhardt's expedition[3] on September 16, 1845, on Cycas Creek beyond the Abel Tasman and Calvert Rivers experienced ill effects from the zamia nuts.

As we passed the Cycas groves some of the dry fruit was found and tasted by several of my companions, upon whom it acted like a strong emetic, resembling in this particular the fruit of *Zamia spiralis*, R. Br., of New South Wales.

Dr. Bennett[9] wrote an article on poisoning by *Macrozamia* in 1871-1872. J. Petrie[10] gives references to recorded cases of *Macrozamia* poisoning.

Livistona Palm.

Leichhardt[3] near the South Alligator River on November 30, 1845, states that many of these palms:

. . . were in blossom, others were in fruit; the latter is an oblong little stone fruit of very bitter taste. Only the lowest part of the young shoots is eatable, the remainder being too bitter. I think they affected the bowels even more than the shoots of the Corypha palm.

Pandanus Fruits.

Leichhardt[3] near the Abel Tasman and Calvert Rivers under the date September 12, 1845, says:

I frequently tasted the fine looking fruit of the *Pandanus*, but was every time severely punished with sore lips and a blistered tongue, and the first time that I ate it I was attacked by a violent diarrhœa. I could not make out how the natives neutralized the noxious properties of the fruit, which, from the large heaps in their camps, seemed to form a small portion of their food. The fruit appeared either to have been soaked or roasted and broken to obtain the kernels, for which purpose we invariably found large flat stones and pebbles to pound them with. I supposed that they washed out the sweet mealy matter contained between the stringy fibres and that they drank the liquid, as they do with the honey, and that their large koolimans which we had occasionally seen were used for the purpose. I consequently gathered some very ripe fruit, scraped the soft part with a knife and washed it until all the substance was out, and then boiled it, by which process it lost almost all its sharpness, had a very pleasant taste, and taken in moderate quantities did not affect the bowels. The fruit should be so ripe as to be ready to drop from the tree.

Crude Maize.

In a letter from Governor Phillip[8] to Dundas dated October 17, 1792, it is recorded that:

From the time the grain began to ripen to the time it was housed the convicts were pressed by hunger and great quantities were stolen and concealed in the woods; several

convicts died from feeding on it in its crude state when carrying the grain to the public granary.

Poisoning by Toadstools (Agarics).

As practically the only fungus eaten in Australia is the common mushroom and as other deleterious species are little likely to be confounded with it, cases of poisoning in Australia are few. In the *Australian Medical Gazette*, published in Melbourne on March 30, 1869, it is stated that a child was poisoned at Newcastle by a toadstool the size of a crown piece. No details are given.

In May, 1922, at Strathdownie near Mt. Gambier a little boy of three years became ill after eating mushrooms and died next day. The symptoms have not been given. It was believed that a toadstool was accidentally incorporated amongst the mushrooms.

My former colleague, Dr. Burton Bradley, has informed me of a case in which mushrooms were being eaten and as the meal progressed the partakers of the mushrooms gradually became more and more hilarious, the most simple remark giving rise to peals of laughter. They realized that they were really suffering from a type of intoxication. The poisoning passed off without any other than these pleasant effects. Probably amongst the mushrooms was a toadstool, possibly belonging to the genus *Panæolus*. These frequently grow on dung and may possibly be mistaken for mushrooms. Poisoning from them is said to be characterized by symptoms suggestive of a mild form of intoxication.

Plants Containing Poisonous Alkaloids.

Solandra Longiflora (Solanaceæ).

The following extract is taken from THE MEDICAL JOURNAL OF AUSTRALIA, April 21, 1917:

In 1907 a gardener was admitted to the Royal Prince Alfred Hospital, Sydney, with loss of sight occasioned by the entry into his eyes of some juice from a bush that he was pruning. There was full dilatation of the pupil, suggesting the presence of atropine. The shrub was found to be *Solandra longiflora*, which is a native of the West Indies, and is grown freely in gardens in Australia for its large white trumpet-shaped flowers. An investigation by Dr. Petrie[11] revealed the presence in this plant of an alkaloid which could be split into tropic acid and basic tropine, and which thus possessed the constitution of a tropeine. This tropeine could not be isolated in a pure form, but a study of its chemical characters showed that it differed from those alkaloids already known. It was named solandrine.

Brugmansia Knightii (Solanaceæ).

Dr. Blaxland[12] stated before the Ophthalmological Society of New South Wales that a small boy climbed a tree of the order *Solanaceæ, Brugmansia knightii*, and got some of the juice into his eye which gave rise to full mydriasis. His aunt, a nurse from the Northern Rivers, introduced some into her own eye with a similar result.

Duboisia Hopwoodii (Solanaceæ).

Dr. Bancroft[13] in 1876 before the Queensland Philosophical Society, gave an account of the pituri poison (*Duboisia hopwoodii*, F.v.M.). The dried leaves mixed with some ashes are chewed by the natives. Pituri causes a severe headache in persons who are unaccustomed to it and the dust given off while the leaves are examined causes sneezing. In Wills's diary it is stated that when he was near Cooper's Creek on May 7, 1861, the natives gave them some bedgery or pedgery which had a highly intoxicating effect when chewed even in small quantities.

Datura Stramonium (Solanaceæ).

W. C. Howle,[14] of Bega, New South Wales, describes the following case of stramonium poisoning in a child of three years.

The brother, aged five, and the sister had been playing at horses in the yard. The brother then suggested that the horse should be given some "corn" and gave his sister the seeds of a plant growing in abundance in the back yard. He stated afterwards that his sister had only eaten six "cobs." Half an hour later the child was wildly delirious. The fauces were red, the tongue was dry and scarlet, the mouth dry and the whole face, chest and front of the abdomen showed intense but not punctate erythema. The pupils were widely dilated and the conjunctivæ insensitive. The pulse was uncountable, well over two hundred. The delirium became so intense that the child was almost unmanageable, tearing at her clothes, fighting with her mother and seeming to have persistent purpose in all movements. Vomiting could not be induced, but eventually the stomach was washed out. The child was all right next day.

Plants Producing Urticarial Wheals.

The Giant Nettle (Laportea Gigas).

One of the earliest references to the stings of the giant nettle is in Lieutenant Grant's journal[15] of his stay on the Hunter River, under date June 17, 1801. He mentions that some of the leaves sting like nettles.

About 1825[16] Sir John Jamison's assigned labourers on his estate near the Hawkesbury River, discovered a nettle, presumably it was this plant, the stings of which caused a very much swollen and inflamed arm and hand. It became quite common for them, when they wanted a spell, to injure themselves deliberately in this way.

Backhouse[17] on the Shoalhaven River in 1836, says:

Happening to come in contact with the leaf of one with my hand, it occasioned about as much pain as the sting of a wasp.

Le Soeuf[18] thus describes the effect of the tree in Queensland:

When stung on the hand or arm the pain soon ascends to the armpit and causes a painful swelling, which often lasts for some days. If the hands are bathed in cold water the pain becomes much more acute. . . . The effects of being badly stung often last for months; horses suffer severely, but not cattle. Personally I felt the effect of being stung for three months after.

The Honourable W. Pettigrew[19] refers to the stings of *Laportea gigas* being cured by rubbing in the leaves of the cunjevoi (*Collocasia macrorrhiza*) at intervals during an hour or so. If such a remedy is not applied the pain, although it will cease, will recur again and one man noticed the ill effects for a month.

Plants Causing Inflammation or Irritation of the Skin including the Conjunctiva.

We now know that many examples of irritation or inflammation of the skin including dermatitis

may be due to specific protein sensitization. This being the case it happens that many plants which may be handled with impunity by the vast majority of persons, may give rise in a number of others to mild or even violent reactions, the irritating property lying not so much in any peculiarity of the plant as in the sensitization which has developed in the victim, presumably as a result of a previous sensitizing dose of the plant protein concerned. In addition, however, there are many cases in which mechanical plant appendages, such as bristles or hairs or definite chemical bodies manufactured by the plant are responsible and in these cases there is little or no respecting of persons. In the following accounts little or no attempt has been made to disentangle these various causes of the reaction.

Pseudomorus Brunoniana (Moraceæ).

J. H. Maiden[20] quotes a correspondent from South Queensland in the Tweed District, who states that the sap of *Pseudomorus brunoniana* causes severe irritation to the eyes. He describes a case in which a man suffered severe pain for about five hours which rendered him unable to do more work that day, though only a small quantity had splashed into the eye.

Ficus Stipulata.

J. H. Maiden[20] reports that a Sydney oculist had a patient with severe irritation of the eye, the only traceable cause and that a doubtful one being from rubbing his eyes (the patient was a gardener) after working with *Ficus stipulata* which is so common on walls *et cetera* in Sydney.

Common Ivy.

J. H. Maiden[21] has recorded various Australian examples of irritation from the common ivy. The latter note was communicated by W. M. Carney, a student of agriculture, on three or four occasions having developed a skin rash when he had clipped common ivy. He cut this again after eight years' interval in July, 1921. Next day there was much skin irritation of the arms, hands and between his fingers, but the eyes themselves were not affected.

Parsnips (Pastinaca Sativa, L.).

J. H. Maiden[21] records a case from the West Maitland district, reported by A. J. Pinn. A male developed enormous watery blisters remaining for three or four weeks after handling parsnips whose foliage brushed his arms. This was the second occasion on which this had happened. Two other individuals were similarly affected. Maiden quotes L. H. Pannell[22] for other examples.

Grevillea Robusta (A. Cunn.).

J. H. Maiden[23] quotes as follows from a letter from the Curator of the Public Gardens, Albury:

> I have a man working here who, whenever he has to work much in the trees of *Grevillea robusta*, gets inflammation of the eyelids. . . . No other tree causes him this inconvenience. . . . By working in the trees I mean in the top of the tree, lopping or thinning out branches of the older trees. The sap is the trouble.

Maiden also states that Dr. E. Mjöberg, leader of the Swedish Scientific Expedition of 1910 and 1911 to North-West Australia, informed him that the sap of two species of *Grevillea* is used by the natives to scarify their bodies and to form the scars they deem so ornamental.

The explorer, Leichhardt,[8] when near the Macarthur River, thus refers to the vesiculating properties of the glutinous secretion of the seed vessels of a drooping *Grevillea*:

> John Murphy having no pockets in his trousers, put the seeds which he found during the stage into his bosom, close to the skin, where he had already deposited a great number of *Sterculia*, and was much inconvenienced by starry prickles which surround the seeds. Afterwards, finding the drooping *Grevillea* in fruit, he gathered some capsules and placed them as before stated. Upon arriving at the camp he felt great pain and, on examining the place, he saw, to his greatest horror, that the whole of the skin of the epigastric region was coloured black and raised into a great number of painful blisters. Upon his showing it to me, I thought that it was caused by the *Sterculia* prickles having irritated the skin and rendered it more sensitive to the sharp properties of the exudation of the seed vessels of *Grevillea*. Brown, however, merely touched the skin of his arm with the matter when blisters immediately rose, showing clearly its properties. The discoloration of the skin was like the effects of nitrate of silver.

Anacardium.

Leichhardt[3] while near Bremer Bay, December 16, 1845, mentions finding a new tree:

> A species of *Anacardium*, which the natives called "Lugula"; it bore a red succulent fruit, formed by the enlargement of the stalk, with a greyish one-seeded nut outside, like *Exocarpus*. The fruit was extremely refreshing; the envelope, however, contained such an acrid juice that it ate into and discoloured my skin and raised blisters wherever it touched it; these blisters were not only followed by a simple excoriation, but by a deep and painful ulceration.

Melaleuca and Eucalyptus.

J. H. Maiden[24] refers to irritation caused by the bark of the tea-tree, *Melaleuca linearifolia*. In one case a boy of five years climbed one of these trees in the Parramatta district. On coming down he began to cry and complained of a stinging and itching sensation. The mother of the child was informed by a former neighbour that he had experienced a similar sensation and called it "tea-tree itch." Mr. Maiden suggests that perhaps the irritation was due to the mechanical nature of the bark. In Mr. Maiden's second contribution to this subject he mentions that a suggestion is ventured that the irritation is not directly due to the bark, but to a hairy caterpillar which is often found under the layers of the bark and which causes a good deal of irritation. He also mentions that the Manager of the Mental Hospital at Morisset, near Newcastle, had found that after handling the leaves and twigs of *Melaleuca nodosa* for the purpose of making bush houses the members of the staff or the patients who had done the work, had got sore hands. One man is said to have got these sore hands from stripping off the bark only. Another correspondent stated that *Melaleuca styphelioides* also caused skin irritation.

Mr. Blakely, one of Mr. Maiden's botanical assistants, states that some years previously in the Orange district he had seen two men who had been stripping stringy bark, *Eucalyptus macror-*

rhyncha, and had suffered from festered hands as a result of the stripping. He had a similar experience from the bark of *Eucalyptus hemiphloia*, the white box. After he had climbed the tree to procure fruiting specimens, particles of the fine bark came in contact with his body, causing a red rash to come out which remained on him for about two days.

J. H. Maiden[25] refers to irritation attributed to handling the timbers of *Eucalyptus maculata*, *Eucalyptus hemiphloia* and *Eucalyptus marginata* (really *Eucalyptus diversicolor*). Later[25] he returns to the subject:

> Mr. Charles Hedley had reported that a man at Maryborough, Queensland, habitually became so indisposed after touching the sawn timber of the spotted gum (*Eucalyptus maculata*, Hook.) that he had declined to handle it any further.

Mr. Maiden had heard of one similar case in New South Wales. The irritation attributed to jarrah (*Eucalyptus marginata*) in his "Forest Flora" was found really to have been due to the wood of the karri (*Eucalyptus diversicolor*), which had been unloaded at Port Hedland. It had been "powellized" and hence contained arsenic which might have caused the irritation.

J. MacPherson[26] and C. Hall[27] have letters referring to alleged dermatitis from eucalyptus trees.

Acacias.

J. H. Maiden[28] states that the splinters of *Acacia shirleyi*, Maiden, are said by Dr. Bancroft to cause bad and painful wounds. The same author[29] refers to the Brigalow itch due to *Acacia harpophylla*. This itch specially occurs in the Moree district. The Chief Inspector of Stock had informed him that persons ringing the trees are affected by a very fine yellow powder, thought to come from the bark, which causes itching and irritation of the skin followed by an eruption. From the Forestry Commission of New South Wales the following information was obtained: In the Dubbo district many timber workers suffer from an itch, but no brigalow occurs in this district. On the Bogan River an insect ("giggles") causes an itch. In the Forbes district brigalow itch was not known, but a hairy grub on the myall (*Acacia pendula*) forms a bag shelter which causes itching. In the Deniliquin district timber workers suffer from an itch due to the dust from the shelters of the bag moth which occurs on myall and yarran (*Acacia homalophylla*). On the red gum (*Eucalyptus rostrata*) a decayed cocoon of a moth under the loose bark causes a tormenting itch when the body is perspiring. In the Narrabri district itch occurs apart from the brigalow country and men may work in the brigalow without experiencing any ill effects. Dr. Park had seen dermatitis from cutting the pine (*Callitris*) when it was blossoming and from cutting noogoora burr. The dermatitis recurred when the affected individual returned to work amongst these plants. Persons with tender skins or subject to eczema were specially affected. From these references it would seem doubtful as to whether the brigalow itself has any irritating properties. In most cases the itchiness experienced seems attributable to the irritating hairs of various caterpillars.

Workers with blackwood (*Acacia melanoxylon*) in joinery shops and motor-body works where this timber is employed, sometimes suffer from a severe dermatitis affecting the backs of the forearms, the neck, face and eyebrows more particularly. There is much itching, the lesions tend to weep, there is a good deal of swelling and the conjunctivæ may be congested. The condition appears usually in warm weather, when the patients sweat freely and are exposed to quantities of blackwood sawdust. Only certain individuals seem sensitive, many persons having worked with this wood for a number of years without experiencing ill effects. Experiments on my own arms would seem to show that there is no general irritant present of a mechanical or chemical nature in the blackwood sawdust. The application of various extracts and of pads containing the sawdust mixed with lanoline or wetted with alcohol or with water have failed to produce any definite reaction on my own skin. In all probability the dermatitis that results, is due to some form of sensitization. This aspect is under investigation. Complaints have been made also against other woods such as Californian red pine, but a relationship with a skin rash has not been clearly established.

Choko (Sechium Edule).

J. H. Maiden[30] has contributed the following note from Mr. Ernest W. Smith, of Bexley, near Sydney:

> A few weeks ago my wife informed me that when she was peeling a choko her hands became numb and she thought that her hands were becoming paralysed. A fortnight afterwards she told me that the same thing happened again under similar circumstances and I came to the conclusion that the juice of this vegetable must have local anæsthetic properties. I have since had this opinion confirmed from questions I put to another lady whose experience was the same. I feel sure that the concentrated juice of this vegetable would prove a very powerful and valuable local anæsthetic.

Mr. Maiden adds that on speaking to a member of his household on the subject she at once replied that the peeling of chokos made her hands cold and rough and therefore she always used a fork in order that she might touch them as little as possible.

Hops (Humulus Lupulus, L.).

J. H. Maiden[31] mentions skin irritation befalling hop-pickers in Tasmania. Apparently the hop-rash is known also in England. Mr. Maiden suggests that glandular hairs on the scales of the fruit may be the cause.

Stinkwort (Inula Graveolens).

J. H. Maiden[31] mentions an account by the late Mr. R. Helms,[32] who described distressing symptoms of inflammation of the skin undergone by him after handling stinkwort flowers. He also mentions swelling of the arms, of one eye and the knee in the case of a man in the Wagga district in June, 1917, who had to go into hospital for a week. A correspondent in the Harden-Cootamundra district mentions two cases of a form of "blood-

poisoning" of the arms and face that he knew of in this connexion. Mr. Maiden suggests that the aromatic resinous oil is the irritant; Mr. Helms attributed the irritation to the barbs of the pappus.

Noogoora Burr (Xanthium Strumarium, L.).

Dr. Hittmann, of Wee Waa, has informed me that about February, 1917, after the extensive floods of the Namoi River, a number of men were engaged in cutting down the burr *Xanthium strumarium*, L. and other noxious weeds in proximity to the river banks. Five cases of a weeping eczema or dermatitis occurred in his practice during this period, three being in burr cutters and two in fisherman tramps who camped under the bridges of the river amongst the burrs in following their occupation. In January, 1918, the river was again in flood. Two cases of this same dermatitis again occurred, both being in burr cutters, one of whom had been infected in a similar way in 1917. In the previous year he had come in with a dermatitis, had been cured and had then worked again amongst the burrs and was reinfected. The persons attacked attributed the complaint to this particular burr.

Yams (Dioscorea Transversa, R.Br.).

J. H. Maiden[33] has reported the following example of skin irritation as the result of handling the bulb of *Dioscorea transversa*, a yam, native of New South Wales and Queensland:

> Many years ago, in sending me a sample of excellent arrowroot prepared by a white man from this yam, Mr. Forester Pope, then of the Tweed River, reported that, during the washing of the pulp, an acute irritation was felt in those parts of the hands and arms which came into contact with it. I do not remember an irritation in connection with yams before and the matter is worthy of note.
>
> If my readers will turn to my second article on some plants which cause inflammation or irritation of the skin in the *Agricultural Gazette* for December, 1909, they will see that I give references to irritation in dealing with hyacinth bulbs and the corms of the common arum lily of Sydney gardens. The cause there is attributed to minute needle-shaped crystals of oxalate of lime, and it may be (I simply throw out the suggestion) that a similar explanation may account for the deleteriousness of the yam in the case just referred to.

Arums.

The poisonous properties of the juices of Cunjevoi (*Collocasia macrorrhiza*) are well known and examples have already been reported in this series. One of the earliest references to its ill effects is in Lieutenant-Colonel Paterson's Diary[26] when on the Hunter River under date July 5, 1801, where he says that a species of arum "had nearly been fatal to some of our people."[34]

The Honourable W. Pettigrew,[19] after referring to the leaves of the Cunjevoi curing the stings of the giant nettle, mentions that the juice of this plant led to the healing of an ulcer of two years' standing which had been due to an injury, after being applied for five or six weeks. The juice led to the formation of blisters which became purulent.

Dr. F. H. Cox, of Helensburgh, New South Wales, in January, 1916, had brought to him a boy of eight into whose conjunctival sac some juice from the root of a scented green arum had been squirted. He has kindly supplied me with the following notes:

> The child was seen thirteen minutes after the accident. The eye had been bathed by the child's mother, but the pain was still intense. The vessels of the conjunctiva were dilated, the lower half of the bulbar conjunctiva was swollen, but the pupils were equal and reacted to light and accommodation. The next day the upper half of the conjunctiva had recovered but the vessels of the lower half were still injected. There was now no pain.

Plants Causing Disorders of the Respiratory System.

Pollens and Asthma.

Reference may be made to the many kinds of plant pollens which may give rise to hay fever. It would seem in many cases that a patient sensitive to one pollen is found to be sensitive to a number of others. Only in this way can we account for sensitization being revealed by skin tests with extracts of American plants which do not occur in Australia and to which consequently the patient could hardly have become sensitized. Several cases have been brought under my notice in which attacks of asthma have been associated with the wood-dust of the so called "red pine" (*Sequoia*) and of the Tasmanian blackwood (*Acacia melanoxylon*). In one instance the patient had been working as an amateur with blackwood and was finishing some household work when he developed asthmatic attacks which he finally traced to the blackwood he was using. This occurred some years ago and recently I tried his skin sensitization to blackwood and red pine. He gave a rather indefinite skin reaction, but I was interested and surprised when I saw him next day and was told that he had been kept awake from three to five in the middle of the night by a threatened attack of asthma. He had not been subject to such attacks since he worked with the blackwood itself. Another patient was affected by asthma as soon as he entered a workshop where blackwood was being employed.

Queensland Red Bean (Dysoxylon Muelleri, Meliaceæ).

Mr. R. B. Aldersey,[35] before the Medical Sciences Club of South Australia, mentions eight men who were employed working in Adelaide with Queensland red bean timber for making show cases. They all complained of serious nasal effects, consisting of running at the nose, which lasted a day or so, then bleeding of the nose and after a continuance of work in several instances copious flooding had occurred. This red bean is erroneously identified with the Queensland bean, *Castanospermum australe*, in this reference.

Nasal Irritation from Various Woods.

Workers in joinery and furniture shops sometimes complain of irritation from the inhalation of various kinds of wood dust. The majority of these merely produce slight mechanical irritation. In the cases of the so-called "red pine" (*Sequoia sempervirens*), the New Zealand rimu, and the South Australian blue gum, *Eucalyptus leucoxylon*, the irritation is greater and may give rise to temporary spasmodic rhinorrhœa. To a less extent Australian

blackwood (*Acacia melanoxylon*) is also injurious in this way. R. H. Pulleine[36] refers to these ill effects. (In the report of his remarks the specific name for the blackwood is given in error as *Dysoxylon muelleri*). Kober and Hanson[37] and Kober and Hayhurst[38] say that workers in Sequoia wood, especially recent employees, are liable to suffer from catarrhal symptoms such as sneezing, watering of the nose, smarting of the eyes, irritation in the throat, coughing, difficult breathing and oppression in the pit of the stomach.

Oliver[39] describes the symptoms he observed in workers in this wood (the Californian "red pine," as it is known in Australia) and some experiments he carried out. As this wood is causing a good deal of irritation in Australian workshops when the dust is not controlled, this account is given in full:

> The symptoms produced resemble those of a bad cold in the head and chest. There is a running at the nose, with frequent fits of sneezing, irritation in the throat and chest, followed by coughing, laboured breathing and quickened pulse, and later by a sense of oppression at the pit of the stomach and a smarting sensation in the eyes. The symptoms usually last for only twenty-four hours, and are especially pronounced in men working for the first time with the wood. By next morning the unpleasant symptoms just described have, as a rule, disappeared. A kind of tolerance comes in time to be established, although in the case of men who are the subjects of asthma and throat affections, their experience is painful and the effects enduring. I am informed that if a splinter of the wood penetrates the skin to any depth the wound almost invariably suppurates. The sequoia tree is a conifer and is found in California. . . . Dr. R. A. Bolam and myself have examined sequoia sawdust both chemically and microscopically without finding in it anything definite to explain the symptoms attributed to working with the wood. It can be kept mixed with water without giving an acid reaction. I covered the floor of a rabbit's hutch with sequoia sawdust instead of ordinary sawdust, but the rabbit confined in the cage, although thus exposed to it for several weeks, took no harm. Rats, on the other hand, seemed susceptible to sequoia sawdust; they suffered in a few instances from running at the nose. That the dust of some kinds of woods are more irritating than others has long been known. Rosewood, for example, has had a bad reputation in this respect. The presence of a large amount of inorganic matter in wood causes the sawdust to be much more irritating than that obtained from wood in which such inorganic matter is, comparatively speaking, absent.

Red Rust (Puccinia) Spores and Pollen Grains.

Dr. Park, of Narrabri, has informed me that in two instances he had noted great irritation of the respiratory organs in patients who had been engaged in operations on rusty wheat. The details of one of these he has kindly communicated to me as follows:

> In 1906, E.T., aged 23 years, consulted me. It was in December, and he was engaged driving a reaper and binder, and he stated that the cloud of rust dust was so thick that he could scarcely see the horses which were drawing the machine. The patient first noticed an irritating cough, which gradually increased in severity. During the afternoon he had a severe paroxysm of coughing, in which he had to support himself by holding on to the fence. He subsequently vomited. I saw him about 7.30 p.m., after he had driven in ten miles. His temperature was 102°, and he had pain in his chest of a stabbing character. Percussion did not reveal any dull area, but auscultation discovered high-pitched moist sounds over both lungs posteriorly. He remained in bed four days. His temperature was normal on the third day. He expectorated rust-coloured sputum and said that the sputum had a peculiar bitter taste like that of rust dust which he noticed when working in the field before he became ill.

In 1886, Dr. John Reid,[40] of Port Germein, South Australia, described an epidemic of pneumonia, consisting of thirteen cases that had occurred in this district. He states that the attack was slight in all with, however, in most cases considerable prostration. The right base was attacked in all except one instance. Most of the patients had rigors and some had temperatures which reached 40° C. (104° F.). He described most of the patients as having rusty sputum. He states that in examining rusty sputum from two patients he found that the specimens contained the spores of the rust fungus, although none of these spores were found in the saliva. He also noticed colourless mycelium which he attributed to the spores having undergone early development. In the light of these two cases he attributed the epidemic to the inhalation of the spores from rusty wheat which disease in wheat was unfortunately very plentiful during that year. As he states, rust spores once seen can scarcely be mistaken for anything else.

In this connexion, I may mention a case that I have recorded,[41] in which a girl of twelve and a half years died from a staphylococcal pneumonia and pleurisy. In sections of the infected lung, in addition to large masses of staphylococci were seen thirty or forty oval collapsed bodies something like the ova of a worm. These were examined by a former colleague of mine, Mr. E. MacKinnon, who came to the conclusion that these bodies were pollen grains.

Squamous Epithelioma Following Injury from Boxthorn Prickle.

A male, aged eighty years, was admitted to the Adelaide Hospital under Dr. Scott in June, 1925, with a history of having run a boxthorn prickle into his forehead five months previously. Since then a small lump had come on the forehead. This became larger and a little pus was present in it. His medical attendant tried to burn it out several times. The patient then came to the hospital. There was present a flat elevation about 2.5 centimetres by 1.25 centimetre in size in the centre of the forehead. This was indurated and there was slight reddening about it. The centre had broken down and was discharging a purulent secretion. A small piece of tissue was cut out and found to be a squamous epithelioma. Under local anæsthesia the whole growth was freely removed. Examination of the specimen showed portion of the growth some distance below the surface of the skin.

It is possible that the boxthorn prickle carried in some small fragment of living epithelium which started to grow in the subcutaneous tissues and as a result of the chronic irritation from pus-producing organisms as well developed finally into a squamous epithelioma.

Tetanus Following Boxthorn Prickle.

A case occurred recently in the Encounter Bay district of South Australia in which tetanus was traced apparently to a penetrating wound caused by a boxthorn prickle.

Plants Causing Mechanical Injuries.

Cutting Grass (Gahnia, Probably Gahnia Psittacorum).

The explorers Hume and Hovell,[42] when in Victoria near the Forlorn Hope Range or the Powerful Range in December, 1824, described the country as being very rough. They met with the cutting grass like that found about the Five Islands (Illawarra District). Hovell states that:

> This runs here about four to five feet long, the edges are as sharp as a butcher's knife and its width about one and a half inches. . . Should it be by any chance drawn edgeways across the flesh it will make a deep incision in it which afterwards will become very troublesome.

Spinifex (Triodia Sp.).

Whitlock[43] in an account of the birds breeding in the Dampier Archipelago says that he has:

> . . . torn spinifex to pieces with bare hands in searching for birds' nests, but this entails some suffering from the many minute punctures to the skin (from the long sharp pointed terete leaves longer than knitting needles). The points of the spines are apt to break off and remain in the wounds which become quite painful in consequence.

Speargrass (Stipa spp. and Aristida spp.).

The awns of many of the speargrasses puncture deeply into the flesh of sheep, giving rise to much irritation and great disfiguration when the carcass is dressed. Consequently it is sometimes necessary to condemn as unfit for human consumption owing to its unsightliness a considerable number of carcasses. The explorer Leichhardt[3] when near Robinson's Creek, Queensland, met with an abundance of speargrass (*Aristida*), the awns of which, he said, attached themselves to their clothes and blankets and entered into their skin.

Burrs.

Spencer and Gillen[44] in Central Australia refer to *Tribulus*:

> . . . which looks innocent and pretty enough when it is in flower, but later on, when the plant dries up and the seed cases are fully formed, it is a perpetual nuisance in the camp. Each case has three very sharp, curved spines which can penetrate the flesh easily and deeply. It is known as "three-cornered Jack" and, being very light, is scattered far and wide and is always met with when least wanted.

S. A. White[45] speaks of the sharp spined fruits of one of the salt bushes (*Bassia paradoxa*, F. von M.) as giving much trouble to man and beast in the north-west of South Australia. J. H. Maiden[46] mentions the bindi-eye or bogan flea (*Calotis cuneifolia*, a composite), the burrs of which greatly injure wool and are a source of great irritation to man and domestic animals.

J. Shirley[47] says that the pods of *Mucana giganta*, a large twining legume of the north coast of New South Wales and Queensland, are covered with hairs "that are pungent and irritating."

Other Injuries Attributable to Plants.

Dizziness from Martynia Lutea.

J. L. Froggatt[48] refers to the ill effects attributed to the noxious weed, *Martynia lutea*, known as ram's horn or Devil's grip. Near Dalby in Queensland the seeds are apt to become caught in the wool of sheep or caught round the hocks of sheep, horses or cattle. Men employed in cutting plants become extremely dizzy in the head after working on it for any length of time.

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POSTOPERATIVE PSYCHOSIS.[1]

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THE occurrence of mental disturbances following operation was noted many years ago.

In 1819[1] Dupuytren described a condition of mental excitation which he called *delirium nervosum*, coming on immediately after operation. In 1842 Herzog described a case of mania following an operation for strabismus and in 1863 Sichel reported eight cases after cataract extraction.

In the early days of ovariotomy postoperative delirium was a frequent complication. Most of these cases were due to sepsis and the mortality was very high. There were also, however, true cases of psychosis, the first was reported by Von Courty in 1865. During the next twenty years cases were reported by Lossen and Fürstner, Barwell,[2] Edis, Doran, Kelly, Tait, Spencer Wells and others.

From this arose the superstition that ovariotomy was the cause of the psychosis.

Rohé of Baltimore[3] analysed one hundred and ninety-six cases of postoperative insanity from the ætiological standpoint. He found that the condition followed genital operations in sixty-five instances, cataract operations in thirty-five and various operations in ninety-six cases. The preponderance as regards sex was about four to one in favour of women. Sears of Boston[4], however, showed that in operations common to both sexes the proportion is about equal.

In 1885[5] Halliday Croom reported six cases following "simple, uncomplicated, successful operation in women without suspicion of hereditary taint."

In 1887[6] Savage, Medical Superintendent of Bethlem Asylum, read a paper before the Annual Meeting of the British Medical Association at Dublin. The subject was "Insanity following the use of Anæsthetics in Operations" and in it he referred to five patients under his own observation. He blamed the anæsthetic rather than the operation, but he stated:

> One point needs further study; how long after an operation the effect of the anæsthetic may be felt. In some of the cases referred to, the symptoms followed at once and there seems little room for doubt as to the cause; but in others, hours or even days passed before any characteristic effects followed and I own it seems hard to connect these conditions.

Some years later in a paper on "The Relationship between the use of Anæsthetics and Insanity"[7] he states that it is "rarely produced except in those who had previous attacks or who were predisposed by exhaustion or allied states."

Dent[8] considered the operation to be the causative factor in most instances, but that the immediate attacks were due to the anæsthetic.

> It seems unquestionable that mania may be set up by an anæsthetic in persons free from any predisposition to insanity. No anæsthetic known appears free from this possible risk. Here the cause is toxic not traumatic. Insanity, however, of this variety, follows directly on the administration of the anæsthetic and persists. There is no quiescent period. . . . But when complete recovery from the anæsthesia has taken place and the mind fully reverts to and remains in its normal condition for a varying period, the anæsthetic cannot be held accountable. Moreover, insanity has followed operation when no anæsthetic was employed.

Younger[9] states that the severity or mildness of the operation seems to have little to do with the likelihood of insanity supervening.

> An insane heredity is usually present. The condition mostly comes on in about three to seven days after operation, but in some cases it starts immediately afterwards and these I think are often due rather to the anæsthetic than the shock of the operation.

Symonds[10] records four cases in all of which toxæmia from disease was present. He said that the attack was usually of short duration and was as a rule cured in six weeks.

Macnaughton Jones[11] had seen only two women in whom symptoms of postoperative insanity appeared; one had previously been in an asylum and the other, an official in a private asylum, had been a typical neurasthenic for some years.

Silk[12] states:

> Occasionally, at periods varying from a few hours to a few days after an operation, conditions may develop which, for want of any better explanation, are ascribed to the anæsthetic, though it is not always by any means certain that the anæsthetic is the sole cause of the trouble. For instance, patients with a previous history of insanity may develop an attack of mania or a recrudescence of their former mental state.

Probyn-Williams[13] considered that the condition occurred only in patients who had previously been insane.

Buxton[14] records an attack of acute mania following a herniotomy under local anæsthesia.

Hewitt[15] Gwathmey[16] Webster[17] and others briefly mention the very rare occurrence of insanity following anæsthesia, but record no cases.

I have two cases to record in which insanity followed operation under general anæsthesia.

[1] Read at a meeting of the South Australian Branch of the British Medical Association on July 30, 1925.

The history of the first case I shall give in detail as the patient was fully examined and treated by me for more than a month prior to operation. I administered the anæsthetic myself and supervised the after treatment for some weeks.

Then careful daily notes were kept by the nurse until normality was regained.

On February 13, 1923, Mrs. S., *ætatis* thirty-nine years, consulted me on account of asthma from which she had suffered for ten years. The attacks usually occurred about once a month and always in September, October, November and December. Attacks were brought on sometimes by eating corned beef and possibly by contact with horses and gallardias.

She had suffered from diphtheria at the age of seven, pleurisy at thirteen, measles and bronchitis at thirty-four and had had many "bad colds on the chest." "Bones were removed from the nose" by a specialist six years previously without benefit.

Menstruation had commenced at thirteen, was regular every twenty-eight to thirty days and of three days' duration. There was no dysmenorrhœa. She had never been pregnant, but was very anxious to have a child. The appetite was good, sleep was normal; the bowels acted daily without medicine.

On examination she was seen to be a healthy looking woman, rather plump and with well coloured mucous membranes. The teeth were good and the throat showed no abnormality. The nose was narrow and the airway deficient, some scars were present on the septum. The ears were normal.

No abnormalitiy was found in the heart, the pulse rate was ninety and the systolic blood pressure 130 millimetres of mercury and the diastolic pressure 84.

No abnormality was found in the abdomen. Pelvic examination revealed a small cervix, the uterus was infantile in type and in good position; the appendages were normal. The urine was clear, specific gravity was 1016, it was acid in reaction and contained no albumin and no sugar. The respirations were twenty-four per minute. Rhonchi and râles were present all over the chest.

She was advised to consult Dr. Jay about her nose and was given a mixture containing potassium iodide, tincture of stramonium and caffein citrate.

On February 19 she reported that Dr. Jay found polypoid degeneration on the right side of the nose and advised an operation. The râles and rhonchi were much less and there had been no further asthma.

On March 5 there were no adventitious sounds heard in the chest.

On March 16 anæsthesia was induced by the open method eight cubic centimetres of ethyl chloride and thirty cubic centimetres of "Ethanesal" being required, the time taken was eight minutes. A change was then made to warm "Ethanesal" vapour from a Shipway apparatus with a double airway. Dr. Jay performed a submucous resection of the nasal septum and also removed the anterior end of the middle turbinate and some ethmoidal cells. The duration of the operation was thirty-six minutes and the amount of "Ethanesal" used was seventy-five cubic centimetres. The pulse rate and respiratory rate before operation were respectively 112 and 24 and afterwards were 100 and 24.

Progress was uneventful till the night of March 18 when she told her husband that she was going to be very ill. She had no sleep, became very excited and said she was going to die. Next morning she was very excited, spoke foolishly and called out loudly. Bromides and morphine were given and she slept all night.

On March 20 she got out of bed and screamed. At Dr. Jay's request I saw her and she told me that she wanted to die, had no reason to live as her husband had shot himself and her brother also. She would not see her husband till she "gets to the other side." She had "died twice but was given poison and brought to life." She pretended to sleep and refused all food and medicine. Also she asked for her baby and said that the nurses would not let her have him.

On the morning of March 21 she appeared normal and complained of bad dreams. However, by night a depressed excitable condition had returned.

She was seen by her husband but she refused to recognize him as "he is dead."

On March 23 she began to take food and medicine again and allowed an examination to be made of her fundi, which were normal. She talked of bad dreams concerning Dr. Jay and complained of pain in the nose.

At 1 a.m. on March 24 she blew her nose violently and caused a severe epistaxis which necessitated packing the nose and an injection of morphine. She was quiet all day and slept at intervals.

On March 25 she was very talkative, called everyone "darling" and wanted to know if she would get better.

On March 26 she refused food even from her husband, as she thought it was poisoned. She complained of being unable to recollect previous events.

On March 28 food was again refused as the doctors, nurses and her husband were "conspiring to poison her."

On March 29 she was taken home somewhat quieter, but saying that she could not take communion as she still disliked the doctor. She was very suspicious that she was being taken to an asylum.

She became less excited during the next few days but still was convinced that she had a baby and dreamt that her husband was killed, but recognized him on waking.

By April 8 she was quieter and more normal and enjoyed a motor drive. She talked of going mad and of bad dreams. She wanted to know why the doctor was still visiting, if she was well.

On April 9 she was taken to a country hospital where her sister was matron, she was quiet on the journey and very tired after it.

For the next few days she was quiet except for occasions when she thought she was being poisoned or that other people were mad. She lost confidence in all her relatives.

From this time the rational moments became more frequent and longer. The baby delusion disappeared and she gradually took more interest in her surroundings, went for walks and motor rides. Still later she began to sew, do some gardening and play bridge. There were intervals still when she hated her sister, thought that she was being poisoned and that she had done some great wrong.

By May 12 she was normal and went to visit another sister in the country for a week, after which she returned home rational in every way. She has been quite well ever since and has had no asthma. She speaks to her husband of her illness quite calmly and can remember the details of it.

Reasons for the psychosis in this case are difficult to discover. There was no insane heredity and the patient herself appeared a very well balanced normal woman. Spasmodic asthma, however, is usually looked upon as a nervous disorder and Savage and Goodall[18] mention several cases in which insanity has alternated with spasmodic asthma. Hyperpyrexia and septic absorption have been suggested as causal factors, but the temperature chart showed only one reading as high as 38° C..

The only mental worries known were first that of four weeks anticipation of the operation and second the great desire to bear a child.

I also record a second case by kind permission of Dr. John Corbin.

R.A., a plumber, *ætatis* twenty-eight years, married, was admitted to the Adelaide Hospital on October 30, 1923, suffering from acute appendicitis. An immediate operation under ether anæsthesia induced by the open method was performed by Dr. John Corbin. Purulent free fluid was found on opening the peritoneum, a perforated adherent appendix was removed and a rubber drainage tube was inserted. Three days later the tube was removed,

but had to be reinserted on November 11 as the temperature was still raised and drainage was poor.

On November 12 he began to call out in a loud voice and wept. Two days later he believed himself to be God, was very restless and called out. From this time he sang nonsensical sentences all day long, but was not depressed.

On November 22 he was transferred to the Enfield Receiving Home.

I am informed by Dr. Penny that he gradually returned to normal in the course of the next few months and was able to resume his former occupation.

Toxæmia and pyrexia may have been factors in this case as the temperature chart showed a raised night temperature for nearly three weeks.

Conclusions.

1. Insanity follows a small percentage of operations under anæsthesia.

2. An insane heredity is present in some cases; when this is absent there is often a predisposition from toxæmia, exhaustion or allied states.

3. The incidence is slightly higher after operations on the genital organs.

4. The sexes are affected in equal proportion.

5. Insanity immediately following operation is due to the anæsthetic.

6. Insanity occurring several days after operation is due to the operation itself.

7. Complete recovery usually takes place within three months. Some patients, however, die within a few days and a small percentage never regain normality.

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SOME ASPECTS OF THE USE OF PHYSICAL AGENTS IN TREATMENT IN MEDICAL PRACTICE.

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At present there are signs of increasing interest by medical practitioners in the use of electrical and physical methods in treatment. The well known value of electrical currents in the diagnosis and prognosis of certain nervous and cardiac conditions needs only to be mentioned. Up to the present, however, physiotherapy has been looked at more or less askance. This was largely due to the fact that successful results were not obtained, because in some cases the agents were applied by unqualified practitioners; in others no attempt was made to select suitable cases; while a third set of failures was due to the use of the wrong modality or the inefficiency of the apparatus.

Improved apparatus and research with physical methods in therapy in Europe and America by highly qualified medical men and physicists have raised this form of treatment to a specialty. In these circumstances it seems opportune to draw attention to some aspects of the present use of these agents in the relief of suffering. Physiotherapy is not a panacea; the agents are purely adjuvants and their use is only recommended in suitable instances in conjunction with other beneficial therapeutic measures. The physiotherapeutic agents include heat, electricity, massage, hydrotherapy and radiation from the infrared to the γ rays of radium. They are used as other therapeutic agents to alter cell, tissue or general metabolism, so that the factors favouring the pathological change may be checked or eliminated with a consequent relief of the patient's signs and symptoms and the restoration of function to normal.

Some objectors to these methods say that the effects are the result of psychical stimulation. It has now been proved that heat and electrical currents powerfully influence cellular processes and radiation of all wave lengths is a form of energy that can be absorbed by living cells and affect their processes in many ways. In other words these agents do influence the physical and chemical properties of the constituents of living tissues. Others object on the grounds of empiricism. Is this justified when we consider the untold advantages that have followed the introduction of empirical remedies in the past? The list is long and well known and does not need repetition here.

Cell protoplasm is a highly complex and organized material. Its photo-chemical and electro-chemical processes have their behaviour altered by the action on them of the physical agents we are describing. Research on cell metabolism and atomic physics is being conducted with the newest methods and it is

not difficult to imagine that in the future the practitioner might be enabled to choose a suitable agent or combination of agents to get a specific effect in therapy from these methods.

In general the effects we seek to obtain with these physical modalities are: (i.) Mechanical effects, which may be produced by static electricity, massage and hydrotherapy. (ii.) Ionic effects. The galvanic current is used in these instances. Therapeutic ions may be introduced into the body or noxious ions withdrawn according to the indications. (iii.) Thermic effects. Radiant heat and diathermy are the usual modalities chosen for the production of thermic effects. (iv.) Cellular activity may be stimulated, inhibited or destroyed by suitable radiation. Heat, light, ultraviolet, X rays and radium rays are the agents available and the choice of the suitable portion of the therapeutic spectrum is determined by the indications of the particular condition. (v.) Tonic effects. Muscles and other organs can be stimulated by the wave current, faradism, ultraviolet light, massage, hydrotherapy *et cetera*.

It repays the practitioner to choose his various pieces of apparatus after careful consideration, when he has satisfied himself on points of efficiency and ability to stand the strain of long treatments. It is important to realize that frequently physical methods of treatment have to be used in conjunction to obtain satisfactory results. The equipment of a clinic undertaking physiotherapy includes one of the many forms of apparatus for delivering galvanic, faradic and sinusoidal currents; a high frequency generator; a high candle-power lamp; lamps suitable for ultraviolet emissions; an X ray installation and in larger clinics a quantity of radium in suitable forms for application, is very desirable.

The indications for and the valuable assistance rendered by massage and hydrotherapy in successful therapy, have been recognized for a long time. The main object of this paper is to try and show how these older physical aids to treatment can be reinforced by a judicious selection of suitable newer modalities. For this purpose we are helped by broadly classifying the methods according to: (i.) Whether they depend on the use of a suitably modified electrical current in the body or (ii.) whether the tissues are acted on by energy introduced as radiation.

Forms of Electricity Used.

The chief forms of electricity used in practice include static electricity, galvanism, faradism, high frequency currents (diathermy) and sinusoidal currents.

Static electricity is used in several ways. As a bath it finds favour for certain forms of nervous irritability with low blood pressure; as a brush discharge it relieves the local stasis of sprains and spinal applications have been found helpful in neurasthenia. Static sparks cause powerful contractions in the tissues. Success is claimed by some operators for the static wave current. It is indicated in non-infective inflammation, where a local vibratory effect is sought to lessen congestion and pain by massage and consequent drainage of the inflammatory products. It is useful in treating sprains, fibrositis and painful adhesions. Atonic constipation has been benefited by its use in the course of the colon.

Galvanism (direct current) is the form used for ionization and electrolytic effects. Electrolysis is availed of to obtain the destruction at one or other pole by suitable ions of small growths or hair follicles in situations in which hair is not wanted. Discharging sinuses may be dried up by selecting ions for their bactericidal and astringent effects.

Faradism (interrupted current) is of value in treatment when muscle exercising is the indication.

Sinusoidal currents are used instead of faradism as a rule. They cause less pain and are found to be more efficient. They are indicated in treatment directed to improving muscular tone in visceroptosis, ileal stasis and in paresis or recovery from paralysis of any of the voluntary muscles.

The high frequency currents of Oudin, Tesla and D'Arsonval generate heat in the tissues through which they pass, on account of the resistance they meet. The thermic effect may be diffuse as in medical diathermy or local as in surgical diathermy.

The choice and application of suitable electrodes in the various conditions that respond favourably to this form of therapy, require a knowledge of the underlying pathology in each instance and how it can be effected by modifications in the use of these currents. In conditions treated by surgical means in which the devitalization of pathological tissue is the end sought, experience alone will teach one how to manipulate this agency with a view to getting the proper degree of alteration in the tissue being treated. In certain regions the anatomical relations will suggest the need for caution in the vicinity of important structures.

The heat and hyperæmia induced in conditions treated by medical means relax spasm and relieve pain and congestion and improve metabolism. It benefits such diverse conditions as pneumonia, painful joints, traumatic and inflammatory neuritis and gonorrhœa. The symptoms of pathological high blood pressure often respond favourably to these currents in a form that involves a principle known as autocondensation.

In all these conditions attention is paid to all other proved methods of treatment, for example diet, drugs, rest *et cetera*. The destructive effects of the surgical applications are used in treatment of piles, fissure-in-ano, rodent ulcers, epitheliomata and oral and vesical benign and malignant tumours.

Particularly good results have been obtained in using diathermy for the hyperkeratotic conditions that occur on the lower lips and faces of patients exposed to the chapping effects of the wind and sun. Lingual leucoplakia is also a condition that has responded most favourably to electrocoagulation.

Many surgical applications require the use of a local or general anæsthetic. Care is necessary in

doing head work when ether is being exhibited. The surgical procedure is usually bloodless and does not shock the patient. The lymph vessels are occluded; the value of this is apparent when malignant conditions are being treated. Surgical diathermy as a rule leaves a satisfactory pliable scar.

Forms of Therapeutic Radiation.

Therapeutic radiations include a wide range of wave lengths from the infrared to the γ rays of radium (from 343μ to 0.20 Ångström unit). The infrared rays are used as radiant heat where such applications are needed. The visible spectrum (phototherapy) is employed in treatment by certain operators for some skin and general disorders. It is also used as a preliminary to exposures to ultraviolet radiation. It dilates the skin capillaries and so renders the absorptive field of the blood of greater extent.

The value of the ultraviolet rays (actinic rays) in sunlight has been recognized for many years. These rays are readily absorbed by clouds, smoke, dust, fogs and glass, so that comparatively only a small percentage are available when sunlight is used for treatment in most places in the world. This radiation, however, is now economically and efficiently produced by suitably constructed carbon, mercury vapour and tungsten lamps. The quality and quantity of ultraviolet rays is determined by the type of lamp and its working conditions. For clinical purposes a broad distinction is made between water cooled and air cooled lamps. The water cooled lamp relieves pain and congestion and lessens discharge after an initial increase. It is also bactericidal. It has a wide application in dermatology for alopecia, eczema, callous ulcers and so forth.

The radiation from the air cooled lamp regulates general metabolism affecting the chemistry of the blood and influencing the internal organs reflexly. It is indicated when systemic improvement is desired as in infections and endocrine disturbances. Both lamps are often used together and good results are recorded in surgical tuberculosis, wound healing, certain forms of asthma and general debility from various causes.

One case of asthma in a young woman of asthenic habitus is recalled. She has been unsuccessfully treated by the many forms of asthma therapy for many years. Since commencing a course of actinotherapy her condition has improved remarkably. No explanation is here offered for the change, but the fact remains.

To preserve a certain continuity in this *résumé* of physiotherapy a brief reference to X radiation and radium treatment will suffice. Research has unfolded for us a great deal of the physics of these agents and from a physical standpoint our data are precise and definite. But the cellular reaction and general biological effects are far from being even imperfectly understood. Each day increases our hopes that the present intensive study of cytology in the light of recent advances in colloidal chemistry and atomic physics, will improve this unsatisfactory state of knowledge.

However, certain defined effects can be obtained from the use of X rays and radium. Skin erythema and epilation can be produced by these means invariably. In certain skin diseases the beneficial results are so uniform that these agents are considered the treatment of choice.

In adolescent and exophthalmic goître medical care and X radiation have repeatedly averted the need for surgical procedures. The favourable responses in certain cases of tuberculous adenitis, uterine fibromyomata with excessive bleeding and a certain class of blood dyscrasia, are well known and often availed of by practitioners.

The rôle of deep X ray therapy in the treatment of malignant disease is not settled. The rationale of this treatment rests on the fact that different tissues manifest different degrees of sensitivity to X radiation; highly specialized tissues are more resistant and embryonal tissues are more susceptible. Malignant cells in varying degrees are found to be more easily affected than normal cells. The dose of radiation given is so regulated that the normal cells can recover from any damage they receive and so contribute to a favourable reaction.

The chemical and physical factors that determine the sensitivity of tumour cells to X radiation, are not known. The idea of a cancer dose introduced by the German school is not possible, although it has helped progress considerably. In each case a study of the cellular and general response is required and the dosage is estimated and applied accordingly.

In the past much delay has been occasioned to the progress of deep therapy by attempts to pull moribund patients from the grave by its use. Statistics appear to show that the method has a definite place in helping early surgery to improve the prognosis in this dread malady. It seems that some surgeons consider the appearance of metastases and recurrences the indication for deep X ray therapy.

Nevertheless there are favourable aspects to the exhibition of deep therapy in inoperable cases. Experience shows that some malignant tumours retrogress under X ray applications and the patient is apparently cured; others show no sign of favourable reaction; while perhaps the largest class have their troublesome symptoms, such as pain, discharge and hæmorrhage, considerably relieved, while the course of the disease is not altered. As a palliative measure in these cases it is unrivalled and many months of suffering have been avoided by its use in some stricken with this scourge.

Radium produces similar effects to X rays, especially those of the shorter wave lengths. The apparent differences are usually due to the different methods of application. Generally the therapeutic indications and results correspond with those of X rays.

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Reports of Cases.

SARCOMA OF THE ORBIT: KRÖNLEIN'S OPERATION.

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F.G., a male patient, aged sixteen years, was admitted to hospital complaining of bluish puffiness of the right upper eyelid of four months' duration. The puffiness was worse in the morning and the eye was displaced downwards, outwards and forwards. No thrill was present and the movements were but slightly affected. Fundal examination revealed slight fullness of the veins; otherwise the appearances were normal. The field of vision was normal. The vision of the affected eye was "$^{6}/_{6}$ partly" and in the unaffected eye "$^{6}/_{4}$ partly." No abnormality was found on examination of the nasal sinuses. The Wassermann test and the complement fixation test for hydatid disease were carried out, but no reaction was obtained. The patient stated that the condition had become only slightly worse during the preceding two months.

On June 3, 1925, under ether anæsthesia, the outer wall of the orbit was thrown back and the orbit was entered. After a preliminary injection of one cubic centimetre of a one in ten thousand solution of adrenalin which produced a very helpful bloodlessness, the bag of orbital periosteum was opened. After reflection of the outer rectus muscle a soft rounded mass was felt occupying the space between the inner and upper recti muscles, the optic nerve and the eyeball. When a long billed, nasal, spring speculum was inserted, the mass could be seen bulging up from the neighbouring structures. It was shelled out easily by blunt dissection. It was roughly pear-shaped and encapsuled and its measurements in three diameters were eighteen, twelve and twelve millimetres.

Professor Welsh has kindly furnished the following report:

"Growth from orbit is a nodule of sarcoma tissue; highly cellular throughout its whole structure and composed of rounded and ovoid cells. Although histologically the structure is definitely sarcomatous, it is not possible to tell with certainty whether the growth is of endothelial or of connective tissue origin."

A CASE OF ACUTE HÆMORRHAGE INTO BOTH SUPRARENAL BODIES.

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E.B., a miner, aged thirty years, was admitted to the Broken Hill and District Hospital on the evening of June 6, 1925, in a semicomatose state.

Friends stated that the previous night the patient had complained of headache and of a troublesome cough and that he had xomited several times. He was worse next morning, although complaining of no pain or discomfort. He did not vomit again. He was drowsy, becoming more so towards evening. On admission he could not be roused. Three hours prior to admission a rash was noticed on his body.

He had seemed in good health prior to this, save that a week before he complained of a stiff neck and a sore throat which lasted for two days.

On examination the patient was a thick-set, muscular man in a semicomatose state. He could not be roused, although he resented any interference.

His temperature was 40.3° C. (104.6° F.), the pulse rate was 84 and regular. The respirations numbered 48 in the minute. The eyelids were puffy. There were a few small conjunctival hæmorrhages. The pupils were contracted and equal, but did not react to light. The tongue was coated with a thick white fur. Nothing abnormal was found in the chest or abdomen. The knee jerks could not be elicited; the plantar reflexes were flexor in type. Kernig's sign was not present.

On admission there was a purpuric rash on the trunk with a few lesions on the face and limbs. The rash rapidly spread over the whole of the body, the lesions becoming more numerous, larger and confluent. Lumbar puncture was performed under a general anæsthetic and clear fluid under no increased pressure was withdrawn. The only abnormality detected in the fluid was the presence of a few polymorphonuclear cells among the usual number of lymphocytes. The patient's condition was not improved by the lumbar puncture.

The leucocyte count was 26,000 per cubic millimetre. A blood film was normal and a blood culture sterile. A Wassermann test was not done.

Five hours after admission the patient gradually regained consciousness. He complained of a headache, great thirst and very severe pains in both legs. He remained conscious about five hours, then rapidly became comatose and died.

The only treatment given consisted of two doses of calcium lactate, two grammes (thirty grains), and two injections of diamorphine hydrochloride ("Heroin"), 0.005 gramme (one twelfth of a grain), for the pains in his legs.

The *post mortem* examination revealed extreme œdema of the perirenal tissue on each side of the body. Each suprarenal body consisted of a dull red-coloured mass. That on the right side was about twice as large and that on the left side one and a half times as large as a normal suprarenal body. On section no normal tissue could be seen.

There was some congestion at both lung bases with evidence of commencing pneumonia on the left side.

The outer coat of the stomach contained a few purpuric spots.

The liver tissue seemed a little tougher than usual. The gall bladder contained one cholesterin stone. The brain was congested, but contained no hæmorrhages.

All the other organs appeared normal.

The report received from the Sydney Bureau of Microbiology on the *post mortem* specimens submitted was that the liver, kidney, lung and pancreas gave evidence of

considerable congestion. Sections of the suprarenals contained very extensive hæmorrhage extending throughout the organs and destroying the whole tissue.

I have to thank Dr. Kneebone, Superintendent of the Broken Hill and District Hospital, for permission to publish this case.

Reviews.

WILLIAM OSLER.

"The Life of Sir William Osler," by Harvey Cushing, is a great work, a delightful story of a charming personality.[1] To Professor Cushing to whom we owe a debt of gratitude for this feast of good things, the task of writing the biography of his revered teacher has been a labour of love. The biographer rather disclaims any credit for producing this fine picture of the late Regius Professor of Medicine at Oxford. He tells us in a foreword: "Those who knew him best will appreciate the difficulties of compiling these records. Little pretence is made in them to do much more than let his story so far as possible tell itself through what he puts on paper. His rare personality, spirit and character stand out in his recorded letters." "The Life" runs to two volumes. The first, which embraces his American career, is divided into two parts. Part I. contains the record of his life in Canada, 1849 to 1884; Part II. his career in the United States 1884 to 1905. The second volume is devoted to his life in England or more specifically at Oxford. The pilgrimage from the back-blocks of Canada to Christchurch, Oxford, took fifty-six years to complete. Born in the Canadian wilds, William Osler first saw the light in the parsonage at Bond Head, Tecumseth County on July 12, 1849. His parents intended calling him Walter Farquhar in honour of the patron of the Upper Canada Clergy Society, "but pressure of an unexpected sort was brought to bear on this subject." The Orangemen of the district insisted "that the newcomer, of whose arrival they were made aware, should be William. He was promptly dubbed 'the young Prince of Orange'." And so it came about that he was named William. In his early days Osler was a boisterous young rascal, full of the joy of living and practical jokes. His first excursion in the fields of learning was not a success and ended disastrously. "Which one of many escapades led to his final dismissal (from school) makes little difference—whether it was the flock of geese found one morning locked in the room of the common school or the discovery on a Monday morning of a school without furniture, the desks and benches all having been unscrewed from the floor and laboriously hoisted up through a trap door into the garret the Saturday afternoon before or whether it was some disparaging remarks concerning the headmaster of the common school shouted through the keyhole. At all events, expelled he was with his four accomplices. His sister recalls meeting him on the way home that eventful day. He was riding bareback on the Canon's horse, picked up at the shop of his friend and confidant, Pat. O'Connor, the blacksmith, on whom he had called to impart the news. Waving his hand he shouted gleefully: 'Chattie, I've got the sack!'" Osler could not boast in after years, as other distinguished men have done, that he was a dunce at school. He was a good scholar, an ardent naturalist and an all-round athlete. Osler was originally destined for the Church, so with that object in view he "went up to Trinity in the autumn of 1867 having in his possession one of the Dixon Prize Scholarships which he had well earned at Weston." The introduction to the science of zoology and the influence of James Bovell, M.D., subconsciously deflected "the impressionable mind of Osler from the calling his revered preceptor expected him to follow." It is curious to note that at this very time James Bovell was making the opposite journey—quitting medicine for the church. James Bovell had been one of Astley Cooper's dressers and had enjoyed the friendship of Addison and Bright. He had settled in Toronto and helped to organize the Medical Department of Trinity College. This man's personality dominated Osler throughout his life. During the summer vacation in 1870 Osler determined probably on Bovell's advice to leave the Toronto school for McGill as "the clinical opportunities in the Montreal hospitals far exceeded those which Toronto then offered."

Osler graduated as doctor of medicine from McGill in 1872. At graduation he was "awarded a special prize for his thesis which was greatly distinguished for originality and research and was accompanied by thirty-three microscopic and other preparations of morbid structure." After graduation Osler spent two years abroad doing post graduate work which comprised a considerable amount of original research, with no very definite programme for the future. He seriously considered the question of entering the Indian Medical Service. He also set his heart on a career of ophthalmology; but neither of these schemes matured. During his stay in London he spent seventeen months in the physiological laboratory, working under John Burdon Sanderson at University College. "It was a curious trick of fortune that he should have come to work under a man whom thirty-four years later he was destined to succeed as Regius Professor of Medicine at Oxford." In 1874 Osler was offered and accepted the lectureship on the Institutes of Medicine at McGill and in the following year at the age of twenty-five years he succeeded the late Dr. Drake as full professor in the same subject. The part Osler played in the reform of medical teaching beginning with his appointment at McGill and, lasting throughout half a century, was tremendous. In his introductory remarks the newly appointed professor said: "An opportunity will henceforth be afforded to the students attending this school of becoming practically acquainted with use of the microscope in physiology and pathology." In 1873 there died on December 24 at Baltimore a wealthy merchant, Johns Hopkins who bequeathed his princely fortune "to foster higher education." Little did the youthful Osler at that time realize what his contribution was to be "in the establishment of a medical department provided for under this great foundation." It was during the years in which he was teaching the institutes and pathology, that he was preparing himself for the position he was to achieve later as one of the greatest clinicians of his time. In the year 1880 the two men whose influence on Osler had been the greatest—Bovell and Johnson—passed from sight; but though they were dead they yet spoke. At the age of twenty-eight years Osler became a Member of the Royal College of Physicians, London and five years later was elected F.R.C.P. This is a distinction attained by very few at so early an age. In 1884 Osler was called to fill the Chair of Clinical Medicine at the University of Pennsylvania in succession to Dr. Pepper. The acceptance of this position was decided by the toss of a coin. Osler was just the antipode of his predecessor. "So far as the students were concerned there can be no doubt that their first impression (of Osler) was one of disappointment. No polished declamations with glowing word pictures of disease such as they had listened to from Stillé and Pepper and for which, indeed, the Philadelphia School was famed, came from the swarthy person with drooping moustache and informal ways, who instead of arriving in his carriage, jumped from a street car, carrying a small black satchel containing his lunch and with a bundle of books and papers under his arm; who was apt to pop in by the back door instead of the main entrance; who wore, it is recalled, a frock coat, top hat, a flowing red necktie, low shoes and heavy worsted socks which gave him a foreign look; who far from having the eloquence of his predecessor, was distinctly slow in speech; who always insisted on having actual examples of disease to illustrate his weekly discourse on Fridays at eleven and, as likely as not, sat on the edge of the table swinging his feet and twisting his ear instead of behaving as an orator—this at least was not the professor they had expected. It is said of Pepper that, with great dignity but conveying the impression of

[1] "The Life of Sir William Osler," by Harvey Cushing, 1925. Volume I. Oxford: The Clarendon Press. Royal 8vo., pp. xiii. + 685. Volume II.: Royal 8vo., pp. x. + 727.

having no time to spare, he would enter the classroom while taking off his gloves and coat and immediately begin a brilliant discourse on some topic, not always related to his prescribed subject. But it was a horse of a different colour when the students came in contact with Osler in the wards, for the bedside instruction such as he was accustomed to was an undeveloped feature in the Philadelphia School." In 1889 Osler joined the Johns Hopkins Hospital at Baltimore. Here his work was monumental. Johns Hopkins at his death left in the hands of chosen trustees seven million dollars to be equally divided between two institutions which were to bear his name—"a university for there will always be youths to train; and a hospital for there will always be suffering to relieve." We are told something of the beginnings of the hospital. "The opening of the Johns Hopkins Hospital in 1889 marked a new departure in medical education in the United States. It was not the hospital itself, as there were many larger and just as good; it was not the men appointed, as there were others quite as well qualified—it was the organization. For the first time in an English speaking country a hospital was organized in units, each one in charge of a head or chief." "The day after my appointment," wrote Osler later, "I had a telegram from Dr. Gilman . . . to meet him at the Fifth Avenue Hotel, New York. He said to Dr. Welch and me, 'I have asked you to come here as the manager is an old friend of mine and we will spend a couple of days; there is no difference between a hospital and hotel!' We saw everything arranged in departments with responsible heads and over all a director. 'This,' he said, 'is really the hospital and we shall model ours upon it. The clinical unit of a hospital is the exact counterpart of one of the subdivisions of any great hotel or department store'." The hospital was formally opened on Tuesday, May 7, 1889. The responsibility of organizing the clinic rested on Osler's shoulders. The chiefs-of-service appointed were all young men—but such men, Osler, Hurd, Welch, Halsted and Howard Kelly! Professor Cushing tells us that: "Two things must not be lost sight of in regard to the chiefs-of-service. Their youth in the first place—Osler, the eldest, was not quite forty and Howard Kelly, the youngest, only thirty-one. In the second place all these young men were imported from outside Baltimore." In 1891 Osler conceived and brought forth his *magnum opus*, "The Principles and Practice of Medicine," a prince among textbooks. He had a complete lack of faith in the efficacy of drugs; this has been referred to as his only weak spot. "But this weakness," his biographer tells us, "proved in a curious way, an unexpected and most important service to medicine in general. For it led, in an indirect way, to the rescue of the hospital from its financial embarrassment after the Baltimore fire in 1903; to the establishment of the Rockefeller Institute and finally, to the incalculable benefit to humanity which the General Education Board has rendered with Mr. Rockefeller's money, owing to its interest in the prevention and cure of disease. Indeed, the present position of his colleague Welch, as Director of the Institute of Hygiene, is remotely due to the fact that Osler set himself thirty years before to write a textbook of medicine and, as Falconer Madan said years later, 'succeeded in making a scientific treatise literature'." Osler's work at Baltimore won him a world-wide reputation. It is not strange, therefore, that he should be frequently invited to leave Baltimore for other spheres. The Edinburgh University wooed and almost won him. In 1904 Sir John Burdon Sanderson, Regius Professor of Medicine at Oxford, expressed his intention of resigning his chair. The question then arose as to his successor. During his twenty years in Oxford Sanderson had done much to advance "the claim of medical science to be regarded as a University study," but the Oxford graduates were of the opinion that "the Regius Professorship of Medicine should be held by a physician who is representative of medicine in its widest sense." After a considerable amount of debate, agitation and heat the chair was finally offered to and accepted by Osler. In a letter from Weir Mitchell to him at this time the following sentence, a magnificent testimonial, occurs: "As to Johns Hopkins, perhaps you do not know that the Medical School at J. H. is, or was, Osler." The Oxford appointment came at an opportune time. Osler was over fifty years old, had been working at too high a pressure and the breaking point was approaching. The Oxford period was full of incident and the environment congenial. Here he spent the happiest years of a very happy life. The atmosphere, the libraries and the traditions of Oxford were to him as "wine that maketh glad the heart of man." For all the breadth and depth of his learning he preserved the heart of a youth and was ever ready for a practical joke. Like Barrie's McConochie, Egerton Yorrick Davis, M.D., was Osler's whimsical otherself. This creation was quite a conspicuous character during one period. A tremendous worker himself Osler inspired with his own enthusiasm all with whom he came in contact. His library output in forty-nine years was more than seven hundred and seventy books, papers and addresses. The end came when he had reached the age of three score years and ten, at 4.30 p.m. on December 29, 1919. Osler's character is beautifully portrayed in one of the concluding paragraphs of the biography. "He advanced the science of medicine, he enriched literature and the humanities; yet individually he had greater power. He became the friend of all he met, he knew the workings of the human heart metaphorically as well as physically. He joyed with the joys and wept with the sorrows of the humblest of those who were proud to be his pupils. He stooped to lift them up to the place of his royal friendship and the magic touchstone of his generous personality helped many a desponder in the rugged paths of life. He achieved many honours and many dignities, but the proudest of all was his unwritten title, 'The Young Man's Friend'." We must confess that it was with a feeling of regret when we came to the end of the story and closed the book. We congratulate the literary executors of Osler on the choice of a biographer and we congratulate Professor Harvey Cushing on the way he has done his part. He is a master craftsman and has produced a work more fascinating than a novel. The "Life" is admirably illustrated by a number of photographs.

THE VISION OF SCHOOL CHILDREN.

No one can fail to be deeply interested in any effort to conserve the sight of school children, hence we welcome the appearance of Dr. Kerr's little book on school vision.[1] Written for teachers and school workers, the first sixty-one pages are concerned with common defects of the eye and the process of seeing. We cannot honestly commend them to either lay or medical reader. The writing is careless and inaccurate. The normal optic nerve is not white with bluish patches, there are two openings for the lachrymal canals one in each eyelid. We cannot accept the statement that most children squint at their near work. In the last line but one on page 22 the pronoun "which" is left stranded without a verb. A writer has an opportunity, often denied to the medical practitioner who deals with individuals, of educating the public on venereal subjects, so why not say straight out that *ophthalmia neonatorum* is due to gonorrhœa in the mother and that interstitial keratitis is the result of congenital syphilis rather than beat about the bush with feeble euphemisms such as "infectious secretions" and "constitutional disease?" The method recommended for everting a lid with one hand is certainly not the simplest and best. It is a relief to turn to chapter III. on myopia where the author is on surer ground. He quite rightly places the cause of myopia in the child's eyes and not in the school work. His description of the classes for subnormal vision and of the myope classes contains much valuable information worthy of careful study. As there are now twenty-four myope classes in London with over forty teachers we would welcome some definite information as to the results achieved.

[1] "School Vision and the Myopic Scholar," by James Kerr, M.A., M.D., D.P.H.; 1925. London: George Allen & Unwin Limited. Crown 8vo., pp. 159. Price: 5s. net.

The Medical Journal of Australia

SATURDAY, OCTOBER 10, 1925.

Proprietary Foods for Infants.

THE FEDERAL COMMITTEE at its recent meeting considered a letter addressed to it by the Sydney Chamber of Commerce concerning the want of uniformity in the regulations promulgated in the several States in regard to infants' foods. This matter had not been submitted to the Branches and consequently there was no motion on the agenda paper. Moreover, it comes within the scope of the Royal Commission on Health. In these circumstances the Committee determined to take no action. It is true that the Chairman, Sir George Syme, gave a clear account of the difficulties which had impelled the Chamber of Commerce to ask for the support of the Federal Committee.

It is now nearly a year since we called attention to the anomalous action of the Victorian authority in failing to come into line with the Commonwealth and other States after an agreement had been reached at the conference of the representatives of the several health departments. This action is all the more regrettable since it has been shown that restrictive regulations concerning infants' foods are not in the public interest and do not remedy a defect in the control of the public health. THE MEDICAL JOURNAL OF AUSTRALIA has for several years put forward the view that, while mother's milk is the best and only reliable diet for infants, an ideal state of affairs in which artificial foods can be excluded from the diet of infants, has not been reached in any country. The frequency with which substitutes for mother's milk are required, varies very largely. The highly skilled and patient specialist often succeeds in regulating the mammary secretion in such a manner that practically every mother can suckle her infant to their mutual advantage. Artificial feeding is then necessary only in the event of the death of the mother or when she is suffering from tuberculosis or other chronic disease in an advanced stage. Some medical practitioners succumb to the importunities of the mother or her relatives and friends and agree to the proposal that the infant be weaned at the first sign of a temporary difficulty in connexion with natural feeding. It thus becomes necessary to recognize that artificial feeding of infants is resorted to by a large number of women. In these circumstances a considerable variety of foods must be available, for there is no wholly satisfactory substitute for mother's milk. Cow's milk differs from human milk both biologically and chemically. Many babies can be reared on pure cow's milk, but unfortunately the milk offered for sale in almost every city and town in Australia is neither clean nor innocent of pathogenic bacteria. Moreover some infants cannot tolerate any form of cow's milk. The dried milks have proved to be of value since Eric Pritchard first introduced them into general use in a district in which the cow's milk supplied commercially was unsafe. But dried milk has two undoubted disadvantages. The first is that infants who cannot tolerate cow's milk, cannot tolerate dried cow's milk. The second is that since the fat globules have to be emulsified before use, there is a high probability that a considerable proportion of the fat adheres to the vessel and thus the infant receives too little of this ingredient. Every medical practitioner and every mother know that that there are several proprietary foods for infants that have stood the test of time and that yield excellent results when given with care and circumspection. We maintain that it is not the function of any public health department to interfere with the feeding of infants. The well known foods should be available for any mother to give to her infant either with or without the advice of her medical attendant. The health authority should exercise care to exclude from the market any food preparation that is not compounded of clean and pure ingredients. The composition of the food should be disclosed on the label or wrapper and the manufacturer or importer of a food that is not true to label should be liable to penalty. To insist that a food shall be marked: "This food must not be given to infants under six months of age except under medical direction" because it has a composition which does not coincide with an arbitrary formula erroneously supposed to represent the average composition of human milk, is tan-

tamount to the exclusion of many foods that are admirably suited to certain infants. The prohibition of all carbohydrates other than lactose reveals an ignorance of physiology and a disregard of the experience of the medical profession extending over half of a century. The Victorian regulations have not yet been enforced although they were promulgated a considerable time ago and were to have become effective on July 1, 1925. At first sight it appeared as if the effect of these regulations would have been to compel all manufacturers of infants' foods except of the dried milks to withdraw their trade from Victoria or to affix the objectionable sentence to the label. We trust that this was not the intention of the authorities. Closer consideration of the first regulation reveals, however, that even the dried milks could not be sold as infants' foods, since their constituents "are not of the same chemical character as those of human milk." All the other States have now recognized the wisdom of adopting rational and non-restrictive regulations for foods intended for infants. We trust that the Victorian regulations will be withdrawn and replaced by others similar to those of the remaining five States of the Commonwealth.

Current Comment.

HETEROTOPIC ENDOMETRIAL PROLIFERATIONS.

Tumours may be divided into two groups, those whose cells possess the same structure as that of the tissue in which they are found, and those whose cells differ radically from what appears to be their parent tissue. The latter are known as heterotopic tumours. The histogenesis of these tumours is a subject of extreme interest and one which has always aroused much speculation and caused much controversy. The occurrence of heterotopic endometrial tumours of the nature of adenomyomata has been recognized for many years. They have been described in many positions, such as the Fallopian tube, the ovary, the round ligament of the uterus, the umbilicus, the wall of the ileum, the colon and the appendix, the recto-vaginal septum and the *rectus abdominis* muscle. The majority of investigators of tumours of this nature have expressed views based chiefly on the theory enunciated by Cohnheim that tumours develope from masses of simple or complex tissue misplaced during embryonal development. Thus von Recklinghausen held that the epithelial constituents of the adenomata and cystadenomata of the Fallopian tubes, of their interstitial portions and of the outer peripheral layers of the uterus were derived from rests of the Wolffian body and that the centrally placed adenomyomata of the uterus arose from the uterine mucosa or its equivalent the Müllerian ducts.

Dr. M. R. Robinson has recently discussed this question.[1] He refers in the first place to von Recklinghausen's observations and to those of other workers who followed him. Thus Meyer supported the views of von Recklinghausen, but in 1909 went so far as to propound an additional histogenesis, namely a hypoblastic origin from the intestinal mucosa. He subsequently withdrew this view. Cullen maintains that all adenomyomata arise from Müllerian rests or directly from the uterine mucosa. Dr. Robinson refers to Kossmann as having "sounded the first clear notes in the histogenetic concept of adenomyomata" when he stated that every tissue which stands in structural relationship to the Müllerian duct either as an accessory thereof or as a displaced group of uterine glands, must and does assume the same form as soon as it comes under the influence of inflammatory or proliferative stimuli. He also makes some scathing remarks in regard to the work of Sampson, who postulated that ovarian tumours are derived from the uterine mucosa by portion of the latter reaching the ovarian surface through the Fallopian tubes during menstruation. He points out that there is no reason why the menstrual discharge should reverse its course and, flowing upwards, force its way through the narrowest part of the tube in order to reach the ovary. Structural identity alone does not signify genetic proof. In order to substantiate Sampson's claim it would be necessary to prove the absence of endometrial tissue in a previously dilated tube during menstruation. So far no such experimental evidence has been furnished. Moreover, the endosalpynx is capable of undergoing endometrial changes, as has been frequently observed in tubal pregnancy. In addition to this the epithelium which is desquamated during menstruation, is no longer viable and is therefore incapable of taking root anew.

Dr. Robinson states that it is erroneous to attempt to determine the structural origin of a tumour by morphological data alone. The fully formed cell of an adenomyoma is the product of genetic potentialities *plus* biological forces. It is not yet known what the forces leading to differentiation are, but for the unfolding of genetic potentialities certain biochemical or physiochemical conditions must arise within the embryo. The multipotency of the epithelium of the germinal layers is only partly used in the upbuilding of the body. The quiescence or activity of the epithelial cells depends on whether the genetic forces remain potential or become kinetic. The structural and functional relationship between the covering epithelium and the underlying connective tissue, an intercellular factor, has a striking effect on the process of differentiation. Dr. Robinson holds that Meyer's

[1] *Surgery, Gynecology and Obstetrics*, July, 1925.

pronouncement that ovarian hormones may influence primordial kidney rests to endometrial proliferation must be accepted with great caution. This supposition is probably founded upon the multipotency and structural homogeneity of the cœlomic epithelium out of which both the genital and the urinary organs are derived. Dr. Robinson holds that this is not a valid reason for the admission of promiscuity between genetic potentialities and genetic forces. At the same time he refers to the teaching of Lauche that adenomyoma is a neoplasm peculiar to the female, that the epithelium lining the glands responds formatively and functionally to the ovarian hormones in the same way as does the endometrium, that this reaction occurs simultaneously in the tumour and in the uterine mucosa and that the hormonic response is greatest during the height of sexual activity. He has observed decidual reactions in the tubal mucosa in cases of intrauterine and extrauterine gestation as well as in the serosa of the appendix. Hence heterotopic endometrial proliferations have a structural and functional identity with the uterine mucosa, both must have a common genetic source and both must be influenced by the same hormone or hormones. The same applies to all types of adenomyomata. In the evolution of an extrauterine endometrial growth there is a topical awakening of the genetic potentialities in some of the unused cœlomic rests through a sudden increase of the stimulating or through a diminution of the inhibitory genetic forces. Dr. Robinson states that with this explanation the difficulties presented by the theory of displacement are removed. It is not necessary for endometrial parts to be transported and the terminology of displacement must be discarded. It is important to remember the biological principle that the overlying epithelium exerts a definite formative and functional influence upon the supporting connective tissue stroma. The finding of cytogenous tissue around the glandular spaces of adenomyomata is thus a natural and normal sequence. The cœlomic epithelium is unique among the tissues of the female organism in possessing adenomatous *Anlagen* and Dr. Robinson endeavours to show that cœlomic epithelium or its later modification into peritoneum or mucosa is present in locations in which endometrial adenomyomatous centres have been found. It is not necessary to give details of his conclusions in every instance. It is interesting, however, to note that he regards the injured parietal peritoneum as being the genetic source of adenomyoma occurring in a laparotomy scar.

The subject of heterotopic tumours has been discussed on a previous occasion in this journal. In October, 1923, we made reference to the work of Nicholson on heteromorphosis and heterotopic tumours. It will be remembered that Nicholson in discussing epithelial heterotopic tumours rejected emphatically the cell rest theory. He pointed out that Cheatle has demonstrated all stages from simple hyperplasia to malignant infiltration in the same specimen. He held that Cheatle had reduced to an absurdity the hypothesis of the intervention of cell rests. In view of Cheatle's work it would be necessary to grant that all cells lining extensive segments or even whole ducts are of the nature of congenital malformations or cell rests. Nicholson held that there were two possibilities. Either lost characters had been reacquired by certain cells, a process of metaplasia or else structural characters that were latent, had become apparent, a process of prosoplasia. He concluded that metaplasia explained the nature of heterotopic tumours; it was an atypical or heterotopic regeneration, a redifferentiation. It will thus be seen that Dr. Robinson's conclusion of "the topical awakening of the genetic potentialities in some of the unused cœlomic rests" is essentially different from that of Nicholson. If the process is one of prosoplasia, it would be correct to state that the condition is not one of true heterotopia.

ADRENALIN INJECTIONS AND THE WASSERMANN REACTION.

In 1924 Shionoya reported observations to the effect that a reaction not unlike the Wassermann reaction was produced in the blood serum of persons to whom certain drugs, such as adrenalin, had been administered. He expressed the opinion that this reaction was due to an increase in the serum globulin of the blood and he held that it was inadvisable to perform the Wassermann test after these drugs had been given.

This question has recently been investigated by Major L. A. P. Anderson and Major J. A. Sinton.[1] They carried out a series of observations at a depôt for British soldiers who were convalescent from malaria. As part of their routine examination the patients received periodically provocative injections of one cubic centimetre of 1‰ solution of adrenalin hydrochloride prior to blood examination. An opportunity of confirming Shionoya's findings thus presented itself. The technique adopted was one "practically identical" with that described as Method IV. in the Medical Research Committee's Report of 1918 on the Wassermann reaction. By this procedure the serum is tested against three and five minimal hæmolytic doses of complement. In order to eliminate fallacies due to syphilis or other disease which might produce a reaction, only those individuals were included in the observations whose serum before the injection of any drug failed to yield a reaction to the Wassermann test. No reaction occurred with any of the sixty-three samples of blood taken at intervals of one hour and three hours after the adrenalin had been given. An indefinite reaction was obtained with the serum of two among thirty-nine specimens of blood taken twenty-four hours after injection. These observers conclude that if the technique adopted by them is used, no "false positive" result is likely to be obtained when the Wassermann test is carried out after the injection of adrenalin in doses given by them.

[1] *The Indian Journal of Medical Research*, July, 1925.

Abstracts from Current Medical Literature.

GYNÆCOLOGY AND OBSTETRICS.

Chronic Endocervicitis and the Electro-Cautery.

C. H. DAVIS (*Surgery, Gynecology and Obstetrics*, April, 1925) reports results obtained by him in the treatment with the electro-cautery of a series of patients suffering from chronic endocervicitis. He regards chronic endocervicitis as a common condition which is usually neglected and which is frequently responsible for other pelvic diseases such as perisalpingitis and perimetritis. It is directly or indirectly responsible for much of the sterility in women and its presence increases the possibility of the occurrence of cervical cancer. It is often a frequent cause of arthritis. The racemose glands of the cervix will harbour organisms for an indefinite period. Chronic endocervicitis due to a virulent organism is the probable cause of certain forms of puerperal sepsis and postoperative peritonitis. The author has applied the light nasal cautery tip to the cervices of one hundred and fifty-five consecutive patients. In the treatment of one hundred and six no anæsthesia was used. In every instance the condition improved and in nearly all healing occurred within six weeks. Among the symptoms relieved by this form of treatment are dysmenorrhœa, dyspareunia, pelvic tenderness and pain, backache, menorrhagia, metrorrhagia and sterility.

Pelvic Suppuration.

RALPH WORRALL (*Surgery, Gynecology and Obstetrics*, February, 1925) outlines his practice in the treatment of pelvic suppurations. When indications are found of the presence of pus or any acute pelvic condition, a preliminary vaginal cœliotomy is performed. The pus is evacuated, the pus sacs are defined and punctured and a large split rubber tube is inserted and stitched in the opening. At the end of a week or ten days, when the patient's general condition has improved, gauze and tube are removed, the track is cleansed with hydrogen peroxide and abdominal section is performed. The focus of infection in the tube, ovarian abscess or appendix, is removed and a fresh drain is placed through the vagina. All patients suffering from acute pelvic conditions, except a first attack or unquestionable gonorrhœal salpingitis of a mild type, are operated on without delay. Since the adoption of this technique the mortality from these conditions in Sydney Hospital has dropped from 20% in 1895 to 1%.

Pathological Conditions of the Amnion.

R. PADDOCK (*American Journal of Obstetrics and Gynecology*, November, 1924) has studied a series of placentæ and membranes and has described two types of lesions occurring in the amnion. The lesion of type A is a well defined, round or ovoid area situated in the placental part of the amnion or in the amnion near the placenta. Lesions of this type range from 2.2 to 5.7 millimetres in diameter. They appear to be situated in the amniotic membrane. They are of a dirty white or cream colour, are opaque and slightly elevated and resemble a bacterial colony growing on a culture medium. On microscopical examination they are seen to consist of granules or fibrils of calcium deposits. Lesions of type B consist of a flocculent cretaceous area on the placental part of the amnion and are up to eight millimetres in diameter. On microscopical examination the change is seen to be in the epithelium which is undergoing squamous alteration. These changes are probably senescent in origin.

Primary Chorio-Epithelioma of the Ovary.

D. DOUGAL (*Journal of Obstetrics and Gynæcology of the British Empire*, Summer Number, 1924) reports a case of primary chorio-epithelioma of the ovary and reviews eight others reported in the literature. Most of the tumours occurred in young people, seven of the nine being less than thirty-one years of age. Eight of the patients had been pregnant. Irregular bleeding occurred in eight and in five the condition was preceded by definite amenorrhœa. All had abdominal pain. The prognosis is very grave. In the instance reported by the author recurrence was found five weeks after operation.

The Prophylaxis of Puerperal Infection.

F. KERMAUNER (*Weiner Medizinische Wochenschrift*, May 2, 1925) discusses the effects of septic foci on the incidence of puerperal infection. Apart from infection lit up by labour there is great danger from organisms introduced shortly before labour commences. The main causes are coitus in the later months of pregnancy and vaginal examinations by patients themselves. The danger of sepsis following abortion is much greater than the laity believe and the mortality is steadily increasing. Apart from pregnancy the menstrual period both at its commencement and termination affords a fertile field for septic infection. It most frequently occurs after douches given under septic conditions. Attention to details and warning patients of the dangers at these periods will help materially to reduce not only the maternal mortality, but also the much greater amount of avoidable invalidism due to chronic pelvic disease.

Vaginal Cysts.

B. BIENENFELD (*Wiener Medizinische Wochenschrift*, May 30, 1925) describes two cases of cysts in the vagina. In the majority of instances they are due to unobliterated portions of Gärtner's duct. Rarer causes are foreign bodies such as ligatures or injections of paraffin used to control urinary incontinence. Occasionally cells from the cervical mucosa are transplanted and form typical cysts. With these there is considerable pain at periods corresponding to menstruation and the cysts may contain a chocolate coloured fluid.

Pathology and Treatment of Dysmenorrhœa.

R. HOFSTÄTTER (*Wiener Medizinische Wochenschrift*, June 27, 1925) divides patients with dysmenorrhœa into three groups. The first comprises those with idiopathic or primary dysmenorrhœa which occurs from puberty through girlhood and is generally associated with uterine maldevelopment. The second is congestive or secondary dysmenorrhœa and occurs after labour or abortion. The uterus is enlarged and partially fixed and definite tenderness of the utero-sacral ligament is present. The cervix is hypertrophied and there is a persistent leucorrhœa. The ovaries are extremely tender on palpation. Frequently the congestion may be due to chronic hyperæmia from cardiac disease, hepatic and biliary lesions, chronic appendicitis or a uterine displacement. Symptomatic or concomitant dysmenorrhœa, that of the third group, occurs in association with tumours, inflammatory lesions of the tubes and malformations. It is only one symptom of the existing pelvic disease. The author reviews the treatment along general lines. With regard to organotherapy he has had most success with ovarian and thyreoid extracts. *Corpus luteum* preparations did not prove to be of much value.

Ætiology of Extrauterine Pregnancy.

F. KOK (*Klinische Wochenschrift*, June 18, 1925)) states that the old views of the mechanical causation of extrauterine pregnancy are wrong. He maintains that the ovum is carried along the Fallopian tube by active peristaltic movements. This peristalsis is stimulated by a hormone secreted by the ovum. If it be lacking, the ovum is delayed. Any adhesions or chronic inflammation of the tubes, despite the fact that the lumen is patent, would accentuate the difficulty of the passage of peristaltic waves along the tube.

Pharmacological Experiments on the Living Round Ligament.

K. JUNKMAN AND W. STROSS (*Klinische Wochenschrift*, June 4, 1925) state that for pharmacological experiments on guinea pigs and cats the round ligament gives as good results as the uterus. Strong contractions with a definite rhythm were noted by the authors in all round ligaments with which they carried out experiments. In no instance did either the uterus or the round ligament react in a contrary fashion to that expected with the drugs employe...

NEUROLOGY.

Myotonia Atrophica (Dystrophia Myotonica).

M. KESCHNER and B. FINESILVER (*Journal of Neurology and Psychopathology*, February, 1925), referring to Rossolimo's original description of *myotonia atrophica* in 1902, agree that it differs from *myotonia congenita* or Thomsen's disease. They record two personally observed cases in a brother and sister, aged seventeen and twenty-one years respectively. Both presented a tapering facies with a hatchet-like appearance on profile; bilateral ptosis; atrophy of the masseter, buccinator, sterno-mastoid and platysma muscles; increased irritability and myotonus of the biceps, deltoid, thenar, hypothenar and gastrocnemius muscles; genital hypoplasia and slight mental defect. They regard the cases as typical and as dominant features point to the increased tonus in some muscles with flaccid paresis and atrophy in others and a distribution of this which is more or less symmetrical. The myotonia is characterized by a slow relaxation of the muscle at the end of contraction, clearly demonstrable when the hand grip is being relaxed.

Psychic Manifestations in Cases of Brain Tumour.

FREDERICK P. MOERSCH (*American Journal of Psychiatry*, April, 1925) says it is common knowledge that practically all patients afflicted with brain tumour have mental symptoms at some period of the disease and that these are subject to variation and fluctuation. He reviews the histories of two hundred and thirty-nine patients observed in the Mayo Clinic and finds that while practically all showed some mental change, in seventy-three this change was very decided. In most cases in the latter category the tumour lay in the anterior or the middle fossa. In most cases also the psychic phenomena were purely generalized, such as listlessness, indifference, anxiety, mental and physical deterioration, dulness, mild apathy or late stupor. These reactions, he remarks, are rarely sufficient to aid in the localization of a tumour, but frequently may serve as a clue to diagnosis. In tumours of the frontal lobe and *corpus callosum* there are certain mental factors which are of specific importance, namely, impaired mental grasp (loss of memory and attention), impaired insight and judgement and poverty of thought. The usefulness of a psychiatric examination in all cases of suspected brain tumour is emphasized. There are no fibrillary twitchings, no sensory changes and no symptoms referable to the cranial nerves or sphincters. The tendon reflexes are altered only in accordance with the atrophy present. The usual myotonic electrical reaction is present, but modified in that the atrophied muscles show diminished excitability to faradism and in a lesser degree to galvanism. Speech is nearly always affected, being low and monotonous. Congenital cataract as a frequent association and other signs of abiotrophy in the shape of baldness and testicular atrophy have been noticed. The disease is a chronic and progressive one and the problem of its pathogenesis has not been solved. Having regard to its hereditary nature the author suggests that it is a form of abiotrophy.

A Case of Myokymia.

PERCIVAL BAILEY (*Revue Neurologique*, January, 1925) reports a case of myokymia in a woman, thirty-seven years of age. There was a sustained undulation, a kind of boiling beneath the skin, in the anterior muscles of the left thigh. Individual waves measured about three centimetres in length by five to eight centimetres in breadth. Being irregular their frequency could not be determined, but apparently it was one hundred to one hundred and twenty per minute. The movements did not disappear with voluntary contraction of the muscles, were unaltered by percussion and electrical stimulation and were influenced in no way by hyoscine and other sedatives. In other respects the patient was healthy, but if she rested in bed for a couple of days the myokymia was replaced by painful cramp and it is pointed out that the affection had begun several years previously in the form of cramp. The writer's conclusion is that myokymia and myoclonia are akin.

The Operative Treatment of Gastric Crises.

MACDONALD CRITCHLEY and JULIAN M. WOLFSOHN (*Journal of Neurology and Psychopathology*, February, 1925) point out that it was in the year 1900 that Mingazzini proposed cutting the posterior nerve roots for the relief of severe lightning pains in *tabes dorsalis*. This suggestion was not carried out until Förster (1908) resected the dorsal roots from the sixth to the tenth thoracic segments of a patient suffering from visceral crises and gave immediate and permanent relief. The operation then became popular, but the results have been variable. In 1917 Frazier in a review of seventy-three patients submitted to operation said that only 19.18% could be claimed as cured, while the operative mortality was put at 15.7%. Other operations carried out or suggested are stretching the solar plexus, resection of the thoracic ganglia, severing the gastric branches of the vagus and section of the antero-lateral tracts of the spinal cord. The writers first record the histories of five patients with crises personally treated by ligation or section of the posterior nerve roots. Two died and only one showed definite improvement. In two instances in which anterior as well as posterior roots were deliberately transected, no relief was obtained. The point emerges that the present status of surgery in the treatment of visceral crises is insecure. It is for the future to decide the mechanism responsible for these crises; at present merely uncertain speculative views are held. Some regard the attacks as sympathetic in origin, others blame the posterior roots and ganglia, others the vagus nerve. In this problematic position the writers plead for further investigation and state that modern laboratory methods may assist, because some crises are characterized by a low hydrochloric acid content in the gastric juice.

J. A. SICARD and ROBINEAU (*Revue Neurologique*, January, 1925) write favourably in regard to the operation of section of the antero-lateral tracts of the spinal cord for gastric crises. The section should be made at the fifth thoracic level, on both sides if thought necessary, but care must be taken to confine the section to the tract of Gowers and the antero-lateral tract and to avoid the pyramidal tracts.

Amyotrophic Meningo-Myelitis.

J. P. MARTIN (*Brain*, June, 1925) gives "spinal progressive muscular atrophy of syphilitic origin" as an alternative title to a paper on amyotrophic meningo-myelitis. The clinical term "progressive muscular atrophy" is a purely general one. The ætiology of the disease in all but a few cases is unknown. Evidence is produced to show that as regards the atonic type of chronic spinal progressive muscular atrophy syphilis is the commonest cause. Two such cases are reported in detail. The pathological findings and also certain of the clinical and therapeutic characters indicate that the disease process is unequivocally syphilitic in nature, that it begins in the lepto-meninges and that the destructive influence affects the cord mainly from the surface inwards, lymph channels probably aiding its penetration to central parts. From an analysis of sixty cases (seven personally observed) the main clinical features are given as follows: Atrophy of the "atonic type" begin (*a*) in the small muscles of the hands, (*b*) in the shoulder muscles or (*c*) in the muscles on the outer side of the leg; it may be unilateral or bilateral; its onset is not infrequently preceded by pain; spasticity of the lower limbs may occur; bulbar signs are uncommon; the vibration sense may be impaired; there may be difficulties of sphincter control. Argyll Robertson pupils were present in only 28.5% of these cases. No reaction was obtained in the blood to the Bordet-Wassermann test in one-third of the cases and there was no definite case in the series in which the reaction failed in the cerebro-spinal fluid before antisyphilitic treatment had been given. In four personally observed patients the progress of the disease had been arrested by antisyphilitic treatment and a similar result has been recorded by others.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held in the Lister Hall, Hindmarsh Square, Adelaide, on July 30, 1925, DR. C. T. C. DE CRESPIGNY, D.S.O., the President, in the chair.

Skiagrams.

DR. H. A. MCCOY showed a series of interesting skiagrams. He demonstrated the points of interest in each.

The first patient was forty-seven years of age, complained of hard swellings just above and behind the ankles and gave a history of having undergone surgical manipulation for "club feet" when a child. In the skiagrams circumscribed areas of ossification were seen in the proximal portion of each *tendo calcaneus*. It was pointed out that the ossification bore no resemblance to that seen in ordinary bone forming tumours nor was the distribution at all characteristic of *myositis ossificans*. It was thought probable that the condition had arisen as an effect of the manipulation, its symmetrical distribution and general appearances suggesting rather an unusual process of repair than a neoplasm or an infection.

The second and third patients were aged respectively fifty-three and thirty-five years. Both complained of thickening and bowing of the legs and enlargement of the head. The younger patient gave a history of having sustained injury to the right leg whilst assisting in the erection of a pontoon during the war. The appearances seen in the radiograms of both patients were similar. In the skulls the cranial bones were enormously thickened. The thickening had taken place in the outer table and encroachment on the diploe had occurred. The inner table remained well defined and was of normal thickness. The frontal sinuses were large and their lumina were occupied by coarse cancellous bone. Dense calcareous plaques were scattered throughout the frontal and parietal bones. Irregular enlargement of the *sella turcica* had occurred in both skulls. The long bones manifested thickening of the cortex. This was prominent in the tibiæ in which bowing was present anteriorly. It was pointed out that the "cotton wool" appearance of the affected bones was characteristic of *osteitis deformans*.

The fourth patient, aged twenty-five years, had complained of pain over the right cheek and of nasal discharge. In the skiagram a well developed molar tooth was seen to be lodged in the supero-medial angle of the right maxillary antrum. The tooth had been removed at operation by Dr. H. S. Newland who inferred from the character of the implantation that it had developed from an abnormally situated tooth germ.

Another patient, aged five years, had suffered from congenital dislocation of both hip joints. Dr. Newland had reduced the dislocations some months previously and the skiagrams depicted well developed femoral heads in the normal acetabula. The false acetabula were still represented by the crescentic shadows on the dorsum of each ilium just above the normal acetabulum.

Another patient, aged fifty-one years, had complained of pain in the right hip for about two years. In the skiagram almost complete bony ankylosis of the hip joint could be seen. The articular cartilage was eroded and osteophytes circumscribed the joint. The condition was radiographically characteristic of osteoarthritis.

Pigmentation of the Œsophagus Due to Bismuth.

PROFESSOR J. BURTON CLELAND read clinical and autopsy notes of a patient who had suffered from amœbic dysentery and showed the *post mortem* specimens.

A male aged about forty-eight years, a barman who had been several years in the Parkside Mental Hospital suffering from chronic alcoholic mania, passing into dementia, had been affected by indefinite diarrhœa for which he received bismuth. The diarrhœa had gradually faded away. As he became more demented his habits had become intensely disgusting; he had had a habit of eating fæcal matter.

At the autopsy extensive amœbic ulceration had been found throughout the whole of the large intestine from caecum to rectum and also a few centimetres upwards to the ileum. Numerous motile *Entamœbæ histolyticæ* had been found. Dysentery bacilli had not been grown. A patch in the wall of the caecum had become gangrenous and a perityphlitic abscess was just commencing to form. The œsophagus showed a definite degree of hypertrophy in its lower part. No obstruction had been present at the cardiac sphincter and the hypertrophy was therefore probably due to achalasia of the cardiac sphincter with failure to relax when the peristaltic wave reached it. The lower two thirds of the œsophagus were of a glossy black in appearance, this passing into the normal colour in the upper part by irregular streaks which reached higher on the left posterior aspect than elsewhere. Microscopically the mucous coat showed considerable infiltration with polymorphonuclear cells and some disintegration. The pigmentation was due to numerous brownish granules in places in the partly necrosed surface. Apparently the bismuth given for the diarrhœa had been retained some time in the œsophagus owing to the achalasia, the retained food had caused an inflammatory reaction of the wall and some of the absorbed bismuth had been converted into black bismuthous oxide.

It had been difficult often to get the patient to take his food or medicine. He would not completely swallow it and when he got outside would eject it again. By tickling him under the chin the attendants were often successful in getting him to swallow food. Presumably this reflex excitation caused the cardiac sphincter to act harmoniously.

Diseases Communicated by Plants.

Professor J. Burton Cleland read a paper entitled: "Plants, Including Fungi, Poisonous or Otherwise, Injurious to Man in Australia" (see page 463).

DR. R. H. PULLEINE remarked that Professor Cleland's paper was in lighter vein than most medical contributions.

Recently he saw a child who had put a small piece of the leaf of the *Calocasia* in its mouth. Spasm of the glottis with much salivation had occurred. It recalled his own experience with the leaf of the Taro (*Calocasia esculentum*) in Fiji forty years before. His inclination to taste leaves and berires had nearly got him into severe trouble at Rotorua in New Zealand in 1924 where he got "tutued" by the berries of the tutu (*Coriaria*). When he read later that an elephant died from eating this plant he had realized how narrowly he had escaped.

DR. H. NOTT said that he had had some experience of the irritating effect of blackwood sawdust in his hobby of carpentry. He had noticed that after working with blackwood he got a crop of small red pimples on the back of his hands and forearms. This happened with no other woods that he had used.

DR. A. F. STOKES said that he had seen an example of acute dermatitis in a young man who had been shooting in thick scrub on the coast south of Adelaide. The dermatitis occurred on the face, forearms and chest when the skin had been exposed to contact with the brushwood. The itching and burning were very acute and the patient's own idea was that he had been poisoned. The condition took about a week to disappear.

Postoperative Psychosis.

DR. GILBERT BROWN read a paper entitled: "Postoperative Psychosis" (see page 451).

DR. M. H. DOWNEY said that postoperative psychosis was a rare condition. He had seen only nine or ten cases. Defective family history or previous attacks of insanity were generally a predisposing cause and the operation with its attendant circumstances acted as an exciting cause. In Dr. Brown's first case although there were no previous attacks of insanity or defective family history, the patient suffered from asthma, a nervous disorder. As to the question whether the anæsthetic or the operation was the exciting cause, it was generally understood that any mental disorder as the result of the anæsthetic followed quickly and was soon over, so that the patient was rarely

certified. The mental disorder which resulted from the operation, came on in about a week. In connexion with ether he remembered a case of confusional insanity in a young man, a dentist, who had been continually inhaling ether. Another case was that of a man who, fifteen years previously, had been operated on for the removal of a cerebral tumour. This was not a case of postoperative insanity but the interesting point was that the patient had delusional insanity with hallucination of smell. He smelt ether on everything, clothing, furniture, food *et cetera*. There was a patient at Parkside who had developed melancholia shortly after an operation for inguinal hernia. He believed he was spreading disease to everyone and was doomed to eternal punishment. He would have expected many cases of insanity following operations on the male generative organs, but such was not his experience. He had one elderly patient suffering from melancholia which followed resection of the *vesiculæ seminales*. The two worst cases he remembered were those of a young woman who developed acute delirious mania after resection of the ovaries and of a man who after abdominal operation developed a severe form of melancholia with hypochondriacal delusions. In both these instances the progress was very bad. If the induction of general anæsthesia and the use of midwifery forceps at childbirth could be called operative procedures, then cases of postoperative puerperal insanity were frequently seen. However, he believed that the predisposed women who contracted puerperal insanity would probably do so whether instruments were used or not. The stress of childbirth, though physiological, was often a severe one even in normal woman. It was more so when associated with the anxiety and pain of a long and difficult labour. The lesson to be learned from these cases was, he thought, that where operations were to be performed on persons who were thought to be predisposed to insanity, such persons should be allowed to convalesce after operation under good conditions for a longer period than usual.

Dr. A. A. Lendon said that the first case, so vividly narrated by Dr. Gilbert Brown, reminded him forcibly of the symptoms of patients with puerperal insanity who had come under his observation. He had known one striking instance of acute mania after operation. Thirty years previously, when castration was in vogue for enlargement of the prostate, an old man who had become maniacal about two days after the operation, had died about the fourth day without any evidence of sepsis or of mania.

Pyelography.

Dr. H. Carew Nott and Dr. G. H. Burnell exhibited a series of pyelograms in which the following conditions were illustrated: (i.) Stricture of the ureter (two cases); (ii.) kinks of the ureter due to accessory renal arteries (three cases); (iii.) calculous pyonephrosis (one case); (iv.) bilateral hydronephrosis due to a large calculus almost filling the bladder; (v.) complete unilateral duplication of the pelvis and ureter. In discussing the cases Dr. Burnell pointed out that ureteral strictures occurred more frequently than was formerly supposed and that while some of these strictures were capable of being demonstrated in a ureterogram, the majority were more easily diagnosed by the ureteral catheter with a wax bulb.

Ureteral strictures in his opinion were a considerable factor in the ætiology of renal calculus and of pyelitis and it was being recognized that a large part of the benefit which patients with pyelitis derived from renal lavage was due not so much to the solution injected as to the passage of a large sized catheter dilating the accompanying ureteral stricture. With regard to the accessory renal arteries he said these were probably only one factor in the causation of ureteral kinks and they did not give rise to any trouble until through some other cause, such as rapid child-bearing, debilitating illness, *et cetera*, there was a loss of tone of the abdominal musculature and a dropping of the kidney. In other words in a normally placed kidney accessory renal arteries gave rise to no trouble. He also pointed out that in some cases disorders of the urinary tract, such as those illustrated, gave rise to no symptoms directly referable to the urinary system, such as frequency of micturition, dysuria *et cetera*, the only symptom being pain in the abdomen or loin. It was therefore necessary in the presence of chronic abdominal pain which was not directly referable to the appendix, gall bladder, duodenum or stomach, to investigate the urinary tract. Several patients in the series from whom pyelograms shown were taken had had appendicectomy performed without relief of symptoms. One patient had had chronic pain in the left testis and a suggestion had been made to remove that testis, but further investigation had shown the pain to be due to renal calculi.

Finally, the question of the opaque medium for pyelography was dealt with. The earlier pyelograms had been obtained with 20% solution of sodium iodide but, while this gives an excellent shadow it caused in some cases considerable pain and hæmaturia. Next 12% sodium iodide with mercuric iodide had been used, but this too occasioned some discomfort. Recently he had been using a 30% solution of "Neo-silvol" (Parke, Davis's colloidal silver iodide) and had found this very satisfactory. It gave a shadow almost as good as that of sodium iodide and had given rise to no discomfort, so that he was using it in all patients submitted to pyelography.

Pathological Specimens.

Dr. H. S. Newland C.B.E., D.S.O., showed a spleen which he had removed from a patient suffering from Banti's disease. The patient had had hæmatemesis some years previously and three attacks more recently. The spleen was considerably enlarged and though there were fewer adhesions than usual the capsule of the spleen was thick, fibrous and white, so much so that on opening the abdominal cavity the appearance had suggested a hydatid cyst of the spleen.

Dr. Newland also showed a specimen of a papilloma of the bladder of a man. He had attempted to treat it by diathermy through a cystoscope, but as progress was not quick enough and the patient could not spend time for repeated treatments, he had decided to open the bladder suprapubically, remove the papilloma with a knife and cauterize the base with the diathermy button.

The specimen showed well the effect of the diathermy, there being an area of coagulation necrosis of a relatively small portion of the tumour which was about 3.1 centimetres (one and a quarter inches) in diameter.

Spondylitis Deformans.

Dr. C. T. C. de Crespigny, D.S.O., showed skiagrams taken from a male *ætatis* twenty-nine years, who nine years before had fallen off a bicycle and six weeks later had noticed stiffness in the back and then in the hips and knees. He had been treated by his doctor at first by rest in bed and weight extension on the legs for nine months. Then he had been put up in a plaster spinal jacket for nine months. During this period his legs had become drawn up and stiff and he was given an anæsthetic on four or five occasions and had had his joints forcibly moved. They soon, however, resumed their malposition.

His spine was perfectly rigid, both hips and knees were flexed and quite rigid and the muscles of the thigh and legs wasted. The ankle joints and toes could be moved slightly. The skiagrams included those of cervical, dorsal and lumbar spine, the hips and knee joints. All the joints showed general rarefaction, erosion of the ends and disappearance of the articular cartilage and complete bony ankylosis. These appearances were pronounced in both hip and knee joints and in the latter the patellæ were ankylosed to the femora. In addition there was on old healed fracture of the neck of the left femur, possibly the result of forcible manipulation while breaking down adhesions.

NOMINATIONS AND ELECTIONS.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Ashton, John Gerard Arthur Winter, Melbourne, Hospital, Melbourne.

Daly, Thomas Joseph, Saint Vincent's Hospital Melbourne.
Greening, William Thomas, Saint Vincent's Hospital, Melbourne.
Maunder, Harold A., Melbourne Hospital, Melbourne.

THE undermentioned have been nominated for election as members of the New South Wales Branch of the British Medical Association:

Allen, Frederick Thomas, M.B., Ch.M., 1925 (Univ. Sydney) 96, Cardigan Street, Stanmore.
Standish, William Alexander, M.B., Ch.M., 1924 (Univ. Sydney) 206, Victoria Street, Darlinghurst.

Medical Societies.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING OF THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA was held at the Adelaide University on August 7, 1925.

Genes and the Cell.

PROFESSOR BRAILSFORD ROBERTSON read excerpts from an article by Irwin Smith in a current number of *Science* describing *inter alia* the recent experiments of Gye and Barnard on a virus capable of giving rise to cancer in animals. Professor Robertson drew attention to the fact that the recent discovery of many filterable and ultramicroscopic viruses taken together with the demonstration of their particulate character by Barnard, suggested the existence of a type of life far less highly organized than the cell. At the same time modern genetic research had revealed the existence of particulate units within the nuclei of gametes which were irreducible units of hereditary material, the genes. The suggestion might be worth pondering whether a cell was not actually a society of genes, just as the multicellular organism was a society of cells. The simplest organism would in that case not be as had hitherto been supposed, the cell, but the gene. The ultramicroscopic viruses might in that case represent free genes not yet associated with one another to form cells. The intrusion of such genes into somatic cells though an increase of their permeability by irritating agencies might conceivably confer upon the somatic cells a gametic character leading to indefinite multiplication.

Azine Dyes.

MR. R. H. MARSTON in continuation of his previous work upon the precipitation of enzymes by azine dyes had found that a related group of dyes, namely, the acridine dyes, were also precipitants of proteolytic enzymes. The feature in common which these dyes possessed, was the presence of a nitrogen atom in a ring connecting two benzine nuclei.

PROFESSOR ROBERTSON stated that in consequence of Mr. Marston's work he had been led to investigate the action of azino dyes upon the multiplication of *infusoria*. Saffranin in non-toxic doses was without effect, but Janus green at a particular concentration not otherwise toxic enormously retarded multiplication. The acridine dyes, on the contrary, retarded multiplication over a very large range of concentrations. It was thought that carboxyl derivatives of these dyes, being amino acids, might pursue the same route in absorption as the amino acids employed for nutrition purposes. Accordingly Mr. Marston and he had sought to prepare carboxyl derivatives of azine and acridine dyes. The carboxyl azine dye obtained from Janus green by forming a nitrile and subsequent hydrolysis had proved to be non-toxic and possessed of power of inhibiting reproduction in *infusoria* very nearly equal to that possessed by "Acriflavine." Mr. Marston had suggested that the inferior ability of most azine dyes to retard multiplication as compared with the acridine dyes might arise from the fact that the azine dyes were more readily reduced and the completely reduced dye was unable to bind proteolytic enzymes.

Public Health.

MINERS' NYSTAGMUS.

A ROYAL COMMISSION has been appointed by the New South Wales Government to inquire and report on the various questions affecting the coal mining industry. The Commission is composed of His Honour Mr. Justice Edmunds, Messrs James Connell, Sidney Bird and Hamilton Knight, representing the miners and Messrs A. E. O. Sellers, Clement Jones and A. E. Ivatt, representing the owners.

On September 10, 1925, Dr. Rowland Pittar, of Newcastle, gave evidence on certain matters connected with nystagmus in miners. In the course of his evidence Dr. Pittar stated that the main predisposing cause of miners' nystagmus was defective illumination. When a man was in a cramped position and had to look upwards and outwards, it produced a fatigue of his elevator muscles, which assisted in the causation of the disease. Accidents could also be included as predisposing causes. Infection was another predisposing cause. He held that another cause of miners' nystagmus was errors of refraction uncorrected by the wearing of suitable glasses. He disagreed that it was advisable to get miners with nystagmus back to work as soon as possible or that they should be given surface work as soon as possible. He hardly agreed that it would be correct to send the men back if there were electric lamps in the mines. He expressed the opinion that the miner should recover completely before he should be allowed to work underground again. If the men were sent back after they had recovered to a certain extent, the trouble recurred. Men with the severer forms of nystagmus did not recover completely from their symptoms. He said that miners with nystagmus could work on the surface, but they should be free of all the aggravating symptoms of nystagmus. One of them was giddiness; it did not matter what occupation the miner had on the surface, if he had to stoop, his eyes began to dance and he became dizzy. He might fall forward. Dr. Pittar had seen about thirty-five or forty miners with nystagmus. He had told eight men that they had this affection. He did not think that a man could simulate nystagmus, so that an ophthalmic surgeon would be deceived. The diagnosis was easy. It depended on the recognition of the eye movements and the symptoms. The attitude of the patient was characteristic. Many men did not know that they had nystagmus. They knew there was something wrong with their eyes. Some of the miners did not recover for periods of from one to twelve months. They should be kept off work during the whole of that period. Men with nystagmus were more liable to accidents than normal miners. Dr. Pittar did not think that miners working elsewhere than on the coal face were as liable to acquire nystagmus as those working on the coal face. He did not hold the opinion that when a miner passed from bright sunlight into a badly illuminated mine, he was more liable to acquire nystagmus. He, the witness, had never been in a mine. It was pointed out in connexion with the contention that working in a cramped position was a cause, that there were very few collieries in New South Wales in which the seams were so low that a man could not stand up while working on the the face. The greater part of the holing was done by machines and in very few mines in New South Wales was it necessary for the men to hole with the pick on the floor of the seam. Dr. Pittar agreed that in New South Wales miners did not have the same predisposing cause to nystagmus as in England. He did not hold that if men with slight nystagmus were not given work either on the surface or around the mine they became psychoneurotic.

Some of the evidence given by Dr. Pittar is at variance with the views held by the majority of authorities in Europe. In 1922 a committee consisting of Professor J. S. Haldane, F.R.S., Professor E. L. Collis, Mr. G. H. Pooley, F.R.C.S., Dr. W. H. R. Rivers and Dr. T. L. Llewellyn appointed by the Medical Research Council issued its first report on miners' nystagmus. In the following year the same committee (unfortunately without Dr. Rivers who had died in the interval) issued a second report. The first report was discussed in THE MEDICAL JOURNAL OF

AUSTRALIA of September 9, 1922 (page 304). In this report a wealth of evidence is adduced to show that the incidence of miners' nystagmus is proportional to the defect in illumination. The introduction of electric safety lamps has had the result of reducing the amount of nystagmus very materially.

The second report has not been summarized in these columns owing to a want of space. In it Mr. Pooley gives a careful analysis of his and other inquiries into the amount of incapacity resulting from miners' nystagmus. It appears that the frequency of nystagmus recognized in various countries depends on the law regulating claims for incapacity on account of the condition. In America no compensation is given and little is heard of incapacity caused by nystagmus. In Germany up to 1913 the incidence of claims was 0.3%; after that date only severe nystagmus entitled a miner to compensation and the claims fell to 0.03%. In Belgium the incidence is 0.2 and in France it has varied from 0.3% in bad pits to 0.05% in good pits. In Great Britain the incidence has increased greatly since the definition given in the *Workmen's Compensation Act* has been recognized. The definition is: "The disease known as miners' nystagmus, whether the symptoms of oscillation of the eyeballs be present or not." Mr. Pooley states that the effect of this was that claims were included for psychoneurosis. The incidence was increased as a consequence of this wide definition. The maximum sum paid as compensation was raised as a natural sequence to the increase in wages and to the reduced purchasing value of money, but there was no corresponding fall in compensation following a reduction in wages. In this way the incidence of claims was still further augmented. On the continent incapacity from nystagmus is held to be present if oscillations are permanently present as soon as the eyes are raised above the horizontal level. Nystagmus is not present if there are no oscillations of the eyeball. In Great Britain the law does not distinguish between incapacity caused by nystagmus and that caused by hysteria or neurosis. Mr. Pooley and his colleagues hold that the continental standard is sounder than the British.

In regard to the duration of the incapacity a great amount of detail has been collected. It appears that it is very rare that a miner has to stop work for more than one month solely on account of miners' nystagmus. Among fifty thousand miners in the Hainault and Charleroi districts only fifteen or twenty stop work completely in any year. On the other hand in Great Britain the duration of the incapacity since the introduction of a generous compensation has increased very greatly. The incapacity is said to last for one, two, five and even ten years.

In order to ascertain the real cause of the incapacity for which compensation was paid in Great Britain after certification for nystagmus, Mr. Pooley has analysed the severity of the condition in accordance with a convenient grouping of the types. He found that of one hundred and twenty-eight miners examined within a few days of certification 17.2% had severe attacks, 32% had oscillations detected in daylight and 33% faint traces of the disorder. He points out that in the years 1921 and 1922 thirty-one miners drawing compensation for nystagmus died. No compensation was payable for the actual causes of deaths which included tuberculosis, renal disease, old age, heart disease, bronchitis, cerebral hæmorrhage, cancer, general paralysis of the insane and pneumonia. He also discovered that the duration of the incapacity was lengthened with advancing ages of the miners.

As a commentary on the system of compensation for alleged miners' nystagmus in Great Britain he recites a typical set of circumstances. A man is certified to be incapacitated by miners' nystagmus. The insurance or indemnity company employs a medical man to report and the advice is given that the miner should work on the surface. The employer, knowing from experience that these men do not make good surface workers, announces that there is no vacancy. The result is that the man stays at home until by the time he has lost every trace of nystagmus, he has lost his value in the labour market. The company has to pay compensation for long periods; for this they charge high premiums to the employer who increased the price of coal to meet this charge. Many miners with extreme oscillation of their eyeballs refuse to stop work. They say that they hate holidays and are more comfortable when working. Some of these men can play cricket. Many refuse to seek compensation "as what he considers the abuse of it by others has given it a bad name."

Mr. Pooley states that his committee is of opinion that miners' nystagmus is a benign affection, that the view taken of it on the continent is correct, that the great majority of miners with this affection benefit by returning to work within three to six months and by continuing to work for at least six months before making a fresh claim for compensation.

In a further chapter Mr. Pooley shows conclusively from an extensive study of the refraction or the eyes of miners with and without nystagmus and of other workers that errors of refraction in themselves have no effect whatever either on the incidence of miners' nystagmus or on the age at which incapacity commences from this affection. There is a slightly higher frequency of myopia among miners in general than among other workers. This is found at all ages and is probably due to an inherited tendency. This has nothing to do with the development of nystagmus.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A MEETING OF THE SENATE OF THE UNIVERSITY OF SYDNEY was held on September 7, 1925.

The degree of master of surgery (Ch.M.) was conferred on George Cumming Byrne, M.B.

The Renwick Medal, awarded in 1884 by the University to the late Dr. Peter Bancroft has been presented to the University by Dr. Æneas McDonnell of Toowoomba.

Obituary.

FREDERICK ERNEST HUTCHINSON.

AFTER a long period of ill health Dr. Frederick Ernest Hutchinson of 49, Pleasant Road, Upper Hawthorn, Victoria, passed away suddenly on August 10, 1925.

Frederick Ernest Hutchinson was born at Sileby, Leicestershire, England, on June 18, 1872. Educated at Wiggeston College, Leicestershire, he subsequently qualified as a pharmaceutical chemist prior to entering as a student of medicine at Guy's Hospital, London.

After having been admitted as a member of the Royal College of Surgeons and Licentiate of the Royal College of Physicians of England he became a resident surgeon at Guy's Hospital and at the end of his term as intern at his *alma mater* commenced practice at Belgrave, Leicestershire. He remained for twelve years in Belgrave where he was associated as a partner with Dr. Wilson Emms.

Frederick Ernest Hutchinson came to Australia in 1911 and settled in practice at Echuca, Victoria. During the three and a half years that he remained in Echuca he made many friends by his conspicuous sincerity in his work and quiet, genial, kindly personality. He served the Echuca District Hospital as honorary surgeon for three years. After a short period of practice in Daylesford, Victoria, he volunteered and was accepted as a medical officer in the Australian Imperial Force. Four years rigorous war service took heavy toll of his health, for though he returned to practice in Healesville, Victoria, where he remained until November, 1923, during the whole of his time there he was subject to constant anxiety on the score of his health. At the end of 1923, being no longer able to continue in regular medical practice he disposed of his connexion in Healesville and went to live in partial retirement at Hawthorn.

A sound and conscientious practitioner, Frederick Hutchinson was also a man of wide general culture. He found in music a source of unlimited solace in many hours of pain. He was known as an excellent exponent of chess and during the term of his residence in Leicestershire represented his county as a chess player. Innately modest and of kindly disposition, he will be remembered by all who were privileged to know him as a cultured gentleman. A widow, but no family, survives him.

Naval and Military.

APPOINTMENTS.

An announcement appears in the *Commonwealth of Australia Gazette*, No. 64, of August 20, 1925, to the effect that the undermentioned officers have been transferred from the General List of the Reserve of Officers to the Australian Army Medical Corps Reserve List, July 1, 1925:

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps Reserve.

Third Military District.

Lieutenant-Colonels J. H. Nattrass, H. B. Lewers, D.S.O., O.B.E., C. E. Dennis, O.B.E., W. G. D. Upjohn, O.B.E., W. P. Norris, S. S. Argyle, F. H. Langlands, J. Gordon, C.M.G., E. B. Allan, A. H. Thwaites, D.S.O., J. R. Webb, J. H. Anderson, C.M.G., C.B.E., and B. M. Sutherland, O.B.E.; Honorary Lieutenant-Colonel T. F. W. Hall; Major F. D. Jermyn, V.D.; Major (Honorary Lieutenant-Colonel), J. C. Morton, V.D.; Majors J. A. O'Brien, P. A. Maplestone, D.S.O., J. P. Fogarty, O.B.E., M.C., A. E. R. White, J. B. Bell, R. E. H. Vernon, C. J. Simpson, M. H. Mailer, M.C., C. H. S. Ponsford, C. H. Anderson, A. H. Joyce, A. Cook, O.B.E., M. V. Southey, D.S.O., H. W. F. Mitchell, M.C., R. D. Bartram, M.C., J. S. Mackay, M.C., D. J. W. Browne, W. C. Sawers, D.S.O., F. F. McMahon, G. Fenton, F. C. Burke-Gaffney, J. Kennedy, J. C. P. Strachan, S. C. Fitzpatrick, M.C., J. P. Kelly, E. A. Guymer, F. E. Hutchinson, H. B. Lee, D.S.O., M.C., J. T. Tait, W. W. McLaren, D. M. Embelton, O.B.E., A. F. Maclure, O.B.E., H. I. Carlile, W. A. Morton, D.S.O., A. H. Powell, D.S.O., J. H. Downing, H. A. Hagen, J. V. Pearce, V. F. Crowe, C. C. Simson, M.C., E. I. L. Graves, J. I. M. Chirnside, M.C., J. S. Yule, S. T. Appleford, R. W. Hornabrook, A. E. Morris, L. J. C. Mitchell, A. C. Fraser, J. V. H. Guest, H. A. C. Irving, W. B. Ryan, H. H. D. Turnbull, R. St. C. Steuart, K. S. Cross, J. S. Reed, B. Van Someren, L. S. Latham, H. Pern, H. N. Featonby, R. G. McPhee, J. C. G. Glassford, M.C., C. N. Finn, O.B.E., B. T. Zwar, D. D. Coutts, D.S.O., C. G. G. Moodie, R. E. Dunn, J. A. Smeal, E. R. Cordner, R. L. Rosenfield, N. H. Fairley, O.B.E., E. Champion, D. C. Pigdon, J. K. Richards, R. S. Whitford, W. B. Craig, D.S.O., H. Flecker, F. D. H. B. Lawton, W. A. Hailes, D.S.O., K. M. Doig, M.C., R. S. de C. Bennett, G. E. Cole, D.S.O., and J. D. Norris; Captains F. E. Littlewood, W. B. Docker, C. W. H. Fleming, W. F. Orr, F. A. Newman, P. H. Lang, H. B. Thomson, H. J. Cahill, W. J. Forshaw, J. G. Dessailly, J. L. Thompson, S. G. L. Catchlove, M. D. Silberberg, H. N. M. Puckle, J. Morlet, A. A. McKay, C. C. Marshall, W. H. Godby, P. J. Campbell, J. C. M. Harper, M.C., T. R. Jagger, M.C., H. Symonds, R. P. Rundle, J. S. Yule, M.C., J. L. Ross-Soden, J. R. Williams, V. C. Brown, M.C., C. E. Watson, M.C., J. M. Henderson, M.C., F. E. T. True, M.C., F. H. James, M.C., A. E. Brown, B. D. Fethers, J. W. Grieve, E. A. Spowers, H. Wright, A. W. Le Souef, A. H. Barrett, W. E. G. Caulfield, J. P. Farrell, D. P. Greenham, W. G. H. Tregear, J. P. Horgan, D. H. Bodycomb, M.C., E. T. Cato, M.C., T. J. K. Whittam, A. J. Gall, R. F. Le Souef, N. A. Maclure, J. R. Robertson, E. H. Britten, F. R. Meagher, C. Maxwell, A. T. Robertson, D. G. May, D. C. Worch, H. G. Brown, C. B. Willis, W. R. Trembath, E. Spargo, J. R. Porter, A. H. Baldwin, S. W. Shields, J. T. L. Seward, A. J. Day, H. Mendelsohn, M.C., L. L. McMahon, John Arthur Smith, J. E. Shelley, H. C. Trumble, M.C., J. C. Nicholson, C. T. 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McLean, H. R. Hyett, O. F. de Lacy, C. Friend, H. T. S. Donaldson, H. F. Maudsley, M.C., A. B. McCutcheon, E. N. H. Gandevia, H. A. S. Newton, K. A. McLean, M.C., S. Cochrane, R. Fraser, W. G. Oakeley, E. M. Gordon-Glassford, M.C., M. McKenna, H. E. Stevens, J. L. Diggle, H. McLorinan, G. A. Blumer, M.C., A. J. M. Fargie, John Gray, C. Checchi, E. R. Mackay, J. H. McGee, A. E. Deravin, P. N. Whitehead, F. F. A. L. Lemon, J. E. Butchart, R. L. Park, A. R. S. Wellman, K. Russell, R. A. Cooper, W. S. Newton, V. G. Webb, S. H. Allen, B. Foster, W. J. Trewhella, T. M. Hendry, T. Unsworth, J. R. Bell, R. P. Henley, F. L. Apperly, D. M. Ross, W. E. O'Hara, H. T. Hamilton, D. G. M. Teague, H. M. James, F. L. Nance, R. W. Lawrence, N. E. Lockhart, R. D. Aitchison and E. H. Jenkins; Honorary Captains J. R. Davis, H. Rogerson, R. M. Lane, J. C. Ross, D. J. Thomas and W. J. P. Flanagan; Lieutenants P. P. Hammond, John Moore, W. H. Summerfield, G. Brooks, F. Hepworth, G. C. Bennett, S. A. Masters, J. N. Barker, K. J. Macleod, G. T. Say, B. J. Thompson, G. A. Payne, E. R. Carrington, L. A. Freeman, W. S. Wilkinson, L. R. McGregor, E. J. Adam, G. B. McNair, W. J. Lumsden, F. T. Herbert, A. S. Campbell, A. E. B. Barnes, E. W. Wills, W. Adam, S. T. Parkes, J. C. Aitken, B. S. Melrose, E. B. Adamson and V. S. H. Osment; Honorary Lieutenants J. A. D. Williams, H. H. Whitehead and H. N. Mortensen; and Second Lieutenant F. P. Hartigan.

Fourth Military District.

Colonels A. E. Shepherd, C.B.E., D.S.O., V.D., and C. L. Strangman; Lieutenant-Colonels C. Yeatman, O.B.E., T. G. Wilson, J. Corbin, H. K. Fry, D.S.O., F. H. Makin, A. M. Cudmore, H. S. Newland, C.B.E., D.S.O., A. J. Meikle, V.D., and H. C. Nott; Majors C. E. Marshall, J. R. S. G. Beard, M.C., W. L. Smith, M.C., W. H. Collins, D.S.O., L. G. Tassie, D.S.O., C. F. Pitcher, J. W. Browne, F. N. Le Messurier, D.S.O., J. S. Verco, J. C. Mayo, D. de C. Browning, D. M. Steele, M.C., J. R. Muirhead, D.S.O., B. Smeaton, E. W. Griffiths, H. A. Wyllie, M.C., W. R. C. Mainwaring, F. L. Wall, M.C., E. A. Brummitt, W. J. E. Phillips, M.C., J. W. Flood, A. V. Benson, W. D. K. MacGillivray and C. Bollen; Honorary Major R. H. Pulleine; Captains A. C. Wilton, G. M. Hains, C. E. C. Wilson, D. Dawson, A. F. Stokes, G. H. S. Dobbyn, J. G. Mackay, H. R. Pomroy, J. G. Sweeney, A. H. Guymer, J. N. Webb, P. W. Rice, R. W. Cilento, E. W. Arnold, A. R. Fletcher, O. Leitch, K. C. Godfrey, W. A. James, F. S. Scott, H. Gilbert, W. M. Sinclair, L. G. Muirhead, G. Brown, S. E. Holder, Harold Frank Dunstan, R. A. Haste, G. H. B. Black, G. S. Shipway, G. H. Burnell, P. Cockburn, R. J. Verco, F. M. Willcox, D. Parkhouse, R. Godson, A. K. Gault, H. W. B. Cairns, N. B. Hall, E. L. Symons, C. W. Stump, E. E. Broadbent, E. F. Harbison, J. A. Love, H. W. Davies, J. H. Leon, G. Wien-Smith, A. Goode, E. B. Thomas,

R. A. Baker, W. R. Bailey, M. L. Scott, C. R. Wiburd, W. H. Jermyn, J. S. Proctor and N. R. Mathews, M.C.; Honorary Captains P. T. S. Cherry, H. S. Covernton and R. E. Magarey; Lieutenants H. H. Blackham, H. C. Meathrel, H. H. McCall, P. R. Magarey, A. M. Ramsey and L. V. Parks; and Honorary Lieutenants C. V. Hoile and N. G. McDermott.

Fifth Military District.

Lietenant-Colonel A. J. H. Saw, O.B.E.; Majors A. E. Randell, R. C. E. Atkinson, J. P. Kenny, N. B. Watch, T. L. Anderson, O.B.E., J. Kenny, F. T. A. Lovegrove, H. H. Montgomery, L. A. Hayward, F. T. Beamish, O.B.E., D. S. Mackenzie, D.S.O., and A. E. Cullen; Captains S. C. Joel, R. S. Andrews, E. N. Bateman, A. Clark, F. H. Wallace, A. E. Morton, J. E. McGlashan, M.C., A. R. Bean, H. B. Gill, A. Badock, F. M. House, C. H. Leedman, M.C., B. F. Hussey, G. T. Donovan, R. G. Braham, L. T. Baker, H. B. Jago, W. S. Myles, N. N. Davis, K. G. M. Aberdeen, A. E. D. Clark and A. S. Johnson; Honorary Captains F. S. Thomas, V. H. Gordon, J. J. Holland, D. R. C. Tregonning, C. D. Kerr, S. Mathews and B. C. Cohen; and Lieutenants T. A. M. Wilson, W. J. Eddington, A. F. Schofield and F. W. Spargo.

Sixth Military District.

Majors D. Bennett, D. H. E. Lines, B. Ingram, E. M. Allester and J. Sprent, M.C.; Captains V. R. Ratten, L. Gollan, E. Brettingham-Moore, G. B. Packham, N. B. G. Abbott, L. Johnston, N. McColl, F. W. Fay, M.C., H. W. Franklands, A. R. Waterhouse, G. M. Parker, D. S. Henderson and E. W. Lacy; Honorary Captains G. M. Anderson, G. J. D. Davies and E. A. Elliott; and Lieutenant O. Blaubaum.

Correspondence.

ESSAY ON MATERNAL MORBIDITY AND MORTALITY.

SIR: Dr. Sydney Morris's essay gives food for grave thought and impels every practitioner to consider what can be done for the care of pregnant women and their safe delivery.

First, as one who has come into contact with a succession of young medical men entering practice, I believe their general professional training—inclusive of midwifery—altogether wrong.

The aim of medical teaching should be to turn out doctors who should be able to manage ordinary illnesses and injuries and normal and the slighter abnormal labours, to recognize graver abnormal cases and know which they can themselves undertake and which demand a consultation with some more experienced *confrère* without any idea of monetary considerations, but wholly for the safety of patients and their right to proper treatment regardless of hurt to the doctor's *amour propre*.

What do we find? The student has assiduously attended the clinics of his honoraries, watched their wonderful operation—gastrectomies, cholecystectomies, hysterectomies and Cæsarean sections—awed by these and the reputed fees gained in private practice, his ambition is to try and emulate them and his dreams are of operations and fees. He may have as much idea of diagnosis and treatment of ordinary illnesses or of how to treat children or rear babies as his grandmother.

Secondly—Constructively I suggest that: (i.) medical students should have it drilled into them that the greater part of their practice will deal with common complaints and normal labours and spectacular operation cases should be few and far between and be dealt with by more competent men.

(ii.) More attention be paid in their teaching to the consideration of everyday illnesses by seeing that students and resident surgeons do more out-patient work. Our own hospital has turned out a succession of men who have become good practitioners through their dealing with all classes of illnesses and so look on their work as a service to the community and not merely a means of amassing wealth.

(iii.) They be taught that the three essentials of midwifery practice are prematernity care, asepsis and patience.

(iv.) Students be taught to visualize their patients as if they were their own relatives and insist on a consultation in grave cases or cases indicating any major operation.

(v.) Gonorrhœal infections in women being so common more efficient means for their treatment should be instituted. The refusal by private and public hospitals to admit these cases leaves the provincial doctor in a quandary as he knows they cannot get adequate treatment and as the patients feel few ill effects from their complaints, they fade out of his ken with possible impending salpingitis and an ophthalmic baby. A "Department of Maternity" should insist on all hospitals providing for the recception of venereal cases.

(vi.) The general baby bonus should be abolished. Prospective mothers in reduced or poor circumstances should have the right to apply for full assistance—medical and material—in their confinements and be attended by their own doctors. This would relieve their mental anxiety.

These few suggestions, however trivial, may possibly stimulate others to air their views and help to elucidate the problem so ably dealt with by Dr. Morris.

Yours etc.,

F. J. NEWMAN,
Honorary Surgeon,
Geelong Hospital.

September 25, 1925.

THE NATIONAL MUSEUM OF AUSTRALIAN ZOOLOGY.

SIR: It will interest your readers to know that the Federal Capital Commission has now allotted sites for the above museum at Canberra. That for the museum and lecture theatre is a magnificent one on Acton Hill, not far from Civic Place and facing Parliament House and the Capital site. The area is a semi-circular one containing five and a half acres.

The research reservation is a peninsula of about fifty acres bounded by the River Molonglo and facing Black Mountain. It lies in what is known as the Continental Arboretum. Here will be kept live specimens of Australian native animals in their natural state. When the buildings are erected, Canberra will become the world's centre for the study of our unique fauna and every facility will be offered to workers, not only Australian, but also from abroad, wishing to study comparative anatomy and its application to modern medical and surgical practice. The medical profession in Australia cannot be too often reminded that our native animals, key animals necessary for a correct understanding of human development, *id est* for a correct understanding of health as against disease, are fast disappearing and like the Tasmanian nation once they go they can never be recalled. There is not one problem facing the physician or surgeon of today on which a study of our fauna fails to throw light. We owe it to succeeding generations to insure that their knowledge of our fauna should be as complete as our own. Documents, illustrations and specimens, if sent to this museum, will be catalogued with the donor's name attached and will be national property for all time.

Yours, etc.,

WM. COLIN MACKENZIE,
Director and Professor of Comparative Anatomy.
National Museum of Australian Zoology,
612, St. Kilda Road, Melbourne,
August 3, 1925.

A WEEK IN THE WOMEN'S HOSPITAL.

SIR: This letter is written by a grateful post-graduate, one of a party of eight qualified students of obstetrics,

who through the enterprise of the Melbourne Permanent Post-Graduate Committee and the Women's Hospital, was able to live at the Hospital in Carlton lately and see the whole practice of the institution.

The post-graduates (seven men and one woman) were very comfortably housed in the old nurses home and had their meals served with the resident staff.

The whole staff, honorary and resident, laid themselves out to make us feel welcome and largely through the untiring efforts of the Resident Superintendent we were kept fully informed of the arrival of interesting cases.

An endless stream of women in labour allowed us to test and improve our skill in obstetrical diagnosis, to apply forceps and witness a large number of the less usual operations.

The following are a few of the interesting conditions seen in seven days: (i.) Podalic version in treatment of *placenta prævia*; (ii.) infected blood in Douglas's pouch, opened and drained; (iii.) pyelitis of pregnancy; (iv.) concealed accidental hæmorrhage, Cæsarean hysterectomy, recovery; (v.) persistent occipital posterior with narrowed outlet, perforation; (vi.) low implantation of placenta at five and one half months, cervix dilated and lower segment packed; (vii.) a practical demonstration of resuscitation in white asphyxia; (viii.) several cases of eclampsia; (ix.) several cases of occipito-posterior with various methods of treatment.

Every morning and afternoon one of the honorary staff attended to demonstrate in the labour ward, to give clinical demonstrations and these mainly informal discussions were packed with invaluable information for the general practitioner.

Everyone of us from the raw recruit to the hardened veteran of thirty years came away with a new outlook on midwifery, an improved technique and an abiding sense of gratitude to all those who had helped to make our stay a success.

The writer believes that a similar course will be held next year and sincerely hopes that the other metropolitan hospitals will follow suit.

Yours, etc.,

H. SHANNON.

Haslemere, 104, Wattletree Road, Malvern.
August 4, 1925.

Medical Appointments.

Dr. Thomas Nelson (B.M.A.), Dr. Bryant Oswald Bladen (B.M.A.) and Dr. Osburn Bracewell Goyen (B.M.A.) have been appointed Government Medical Officers for the purposes of the *Miner's Phthisis Act* of 1922, Western Australia.

Books Received.

METHODS IN SURGERY, by Glover H. Copher, M.D.; 1925. St. Louis: The C. V. Mosby Company. Demy 8vo., pp. 232. Price: $3.00 net.

SOME FUNDAMENTAL CONSIDERATIONS IN THE TREATMENT OF EMPYEMA THORACIS, by Evarts A. Graham, A.B., M.D.; 1925. St. Louis: The C. V. Mosby Company. Demy 8vo., pp. 110, with illustrations. Price: $2.50 net.

SYMPTOMS OF VISCERAL DISEASE: A STUDY OF THE VEGETATIVE NERVOUS SYSTEM IN ITS RELATIONSHIP TO CLINICAL MEDICINE, by Francis Marion Pottenger, A.M., M.D., LL.D., F.A.C.P.; Third Edition; 1925. St. Louis: The C. V. Mosby Company. Demy 8vo., pp. 394, with illustrations. Price: $6.50 net.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

CHILLAGOE GENERAL HOSPITAL, NORTH QUEENSLAND: Medical Officer.

THE UNIVERSITY OF ADELAIDE: Lectureships.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellow's Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

OCT. 13.—Tasmanian Branch, B.M.A.: Branch.
OCT. 13.—New South Wales Branch, B.M.A.: Ethics Committee.
OCT. 15.—Section of Neurology and Psychiatry, New South Wales.
OCT. 19.—New South Wales Branch, B.M.A.: Organization and Science Committee.
OCT. 20.—Tasmanian Branch, B.M.A.: Council.
OCT. 20.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
OCT. 21.—Western Australian Branch, B.M.A.: Branch.
OCT. 22.—Victorian Branch, B.M.A.: Council.
OCT. 23.—Queensland Branch, B.M.A.: Council.
OCT. 27.—New South Wales Branch, B.M.A.: Medical Politics Committee.
OCT. 29.—New South Wales Branch, B.M.A.: Branch (Ordinary).
OCT. 29.—South Australian Branch, B.M.A.: Branch.
OCT. 29.—Victorian Branch, B.M.A.: Council, Nomination Paper Issued.
OCT. 30.—Eastern Suburbs Medical Association, New South Wales.
NOV. 3.—Tasmanian Branch, B.M.A.: Council.
NOV. 6.—Queensland Branch, B.M.A.: Branch.
NOV. 10.—Tasmanian Branch, B.M.A.: Branch.
NOV. 10.—New South Wales Branch, B.M.A.: Ethics Committee.

Editorial Notices.

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